

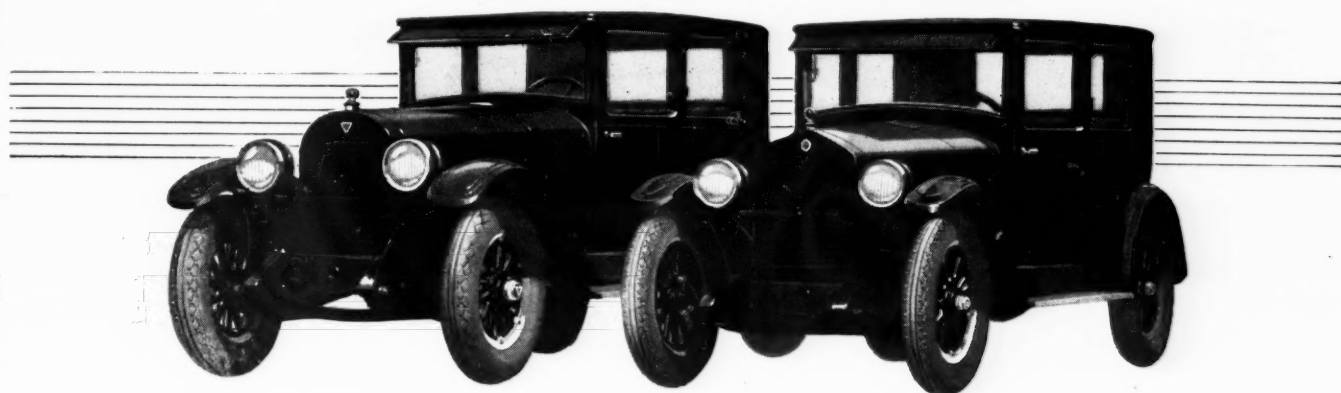
In This Issue—*Putting More Cars on the Road*

# MOTOR AGE

Vol. XLVIII  
No. 13

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE  
CHICAGO, SEPTEMBER 24, 1925

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Three Dollars a Year



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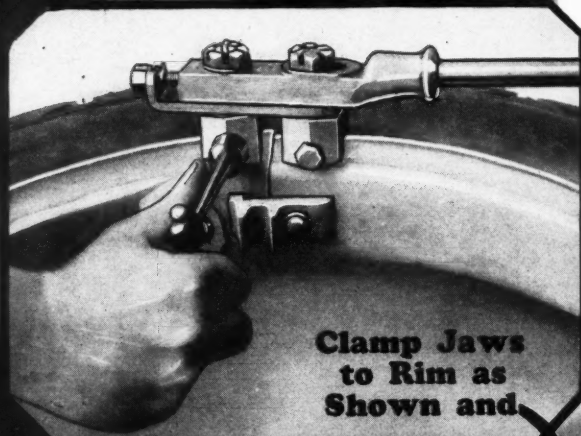
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**HUDSON MOTOR CAR COMPANY, DETROIT, MICHIGAN**

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*F. O. B. St. Louis*

These prices were preceded by the greatest August, the greatest selling season in Moon history . . . They are made possible by a greater public acceptance, constantly growing.

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They are the very reasons why every live dealer should consider increased value of Moon-Diana franchise.

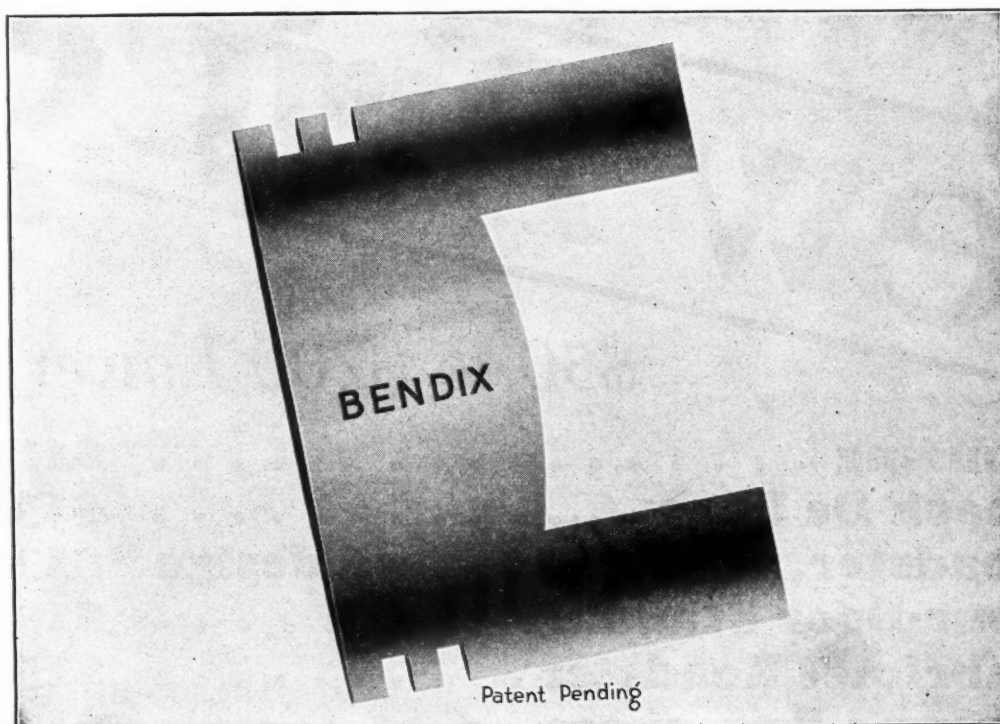
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ECLIPSE MACHINE COMPANY, Ltd., WALKERVILLE, ONTARIO  
ECLIPSE MACHINE COMPANY, HOBOKEN, NEW JERSEY

# MOTOR AGE

Reg. U. S. Pat. Office

Vol. XLVIII

No. 13

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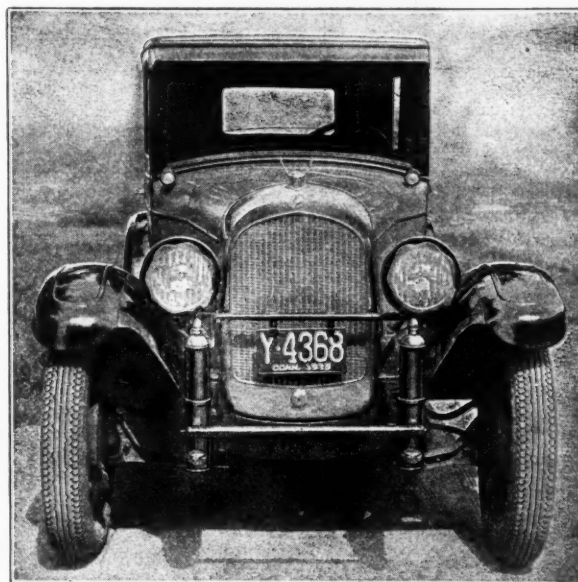
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Real Money  
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**FINEST KNOWN DEVICE FOR  
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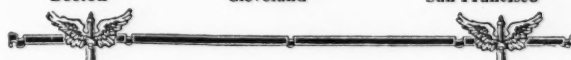
1. New and improved designs.
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passenger car, truck and bus. Get our  
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NEW HAVEN CONN.**

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New York Boston Philadelphia Cleveland Chicago San Francisco Atlanta



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THE rates of tuition are usually terribly high in the school of experience. Years of actual, first hand experience with the problems of dealers have given us some real knowledge of what 1926 may mean to you—knowledge of FACTS based on actual experience which it will pay you to find out. I will gladly answer any questions you put up to me as to the past, present and future of STUTZ and our dealer's proposition. Take my word for it, it is based on cold facts and years of experience.

**FREDRICK E. MOSKOVICS**  
President  
**STUTZ MOTOR CAR COMPANY**  
OF AMERICA, Inc.  
Indianapolis, Indiana.



*This symbol means that Studebaker prices do not  
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COMMON sense instantly proves to every thinking citizen that Studebaker's "one-profit" basis of manufacture is sound.

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OF AMERICA  
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*Nash Leads the World in Motor Car Value*

# *A Franchise that is the Envy of the Industry*

The eagerness of the better motor car merchants of the country to secure a Nash dealer contract is more decisively apparent today than ever before.

In the course of 9 years' time it has grown to be one of the soundest and most profitable business connections known to American industry.

It offers a certainty of profit and a guarantee of future growth beyond all past achievements that attracts the successful motor car dealer like a magnet.

During the Nash contract year just ended August 31st, the dealer body marketed **73.7% more cars** than during the previous contract year.

This far greater gross was handled with *no increase in fixed operating overhead* on the part of Nash dealer establishments.

And the new contract year is now well into its initial month with Nash sales everywhere setting new high records—*and with Ajax sales rapidly gaining nation-wide momentum.*

(2307)  
**NASH**



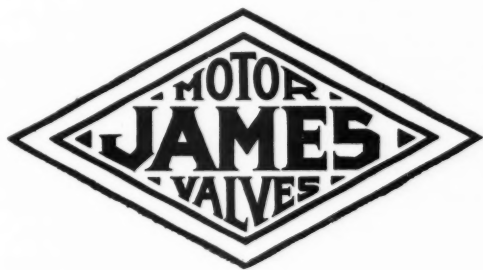
# Known As The Better Valve

There's more to a good valve than a steel stem and a round iron head.

Motor valves, as you know, perform an important job—and they must be precision made to minute limits.

It is because James Motor Valves are manufactured with the strictest adherence to these tolerances that they are known by the trade as a *better* valve.

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No. 1—Profit

No. 2—Product

No. 3—Sales Features

*A notable product, high quality, obvious value, factory co-operation, liberal policies, high resale value—these are the fundamentals of a successful and profitable dealership. Watch for the Chrysler comments on these all-important phases of your business. If you have not read the earlier talks, we will be glad to send you copies.*

CHRYSLER SALES CORPORATION, DETROIT, MICH.  
CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONTARIO

# CHRYSLER

## SIX ~ FOUR

# MOTOR AGE

Vol. XLVIII

Chicago, September 24, 1925

No. 13

## *Summary and Index of Important Events in* **This Week's Automotive News**

*Detailed Stories from MOTOR AGE Staff Writers and Special Correspondents Appear in News Section Beginning on Page 32*

**G**ENERAL business in automotive industry continues well ahead of same period last year, despite decrease in production during August. Page 32.

Department of Commerce reports 221,756 automobiles manufactured in U. S. and Canada during August. Page 32.

Details of Christmas window photo contest are announced by A. E. A. officials. Page 43.

Used car auction opens in St. Louis with spirited bidding. Page 33.

Claude S. Klugh takes place of R. C. Duffus as manager of Pennsylvania Automotive Association. Page 33.

Directory of technical books and libraries, covering almost 50 collections, is published. Page 34.

Motor Truck Industries, Inc., holds meeting in Buchanan, Mich., and sets date of next session as Nov. 8 at Washington. Page 33.

Revenue collections from automotive industry steadily decreasing. Page 33.

Automotive Electrical Association studies motorbus equipment at convention. Page 34.

Hupp production surpasses estimates every month. Demand for eight model unabated. Page 36.

Personnel and training are feature discussions at meeting of Society of Automotive Engineers. Page 38.

Sales by General Motors divisions to ultimate consumers are 21,705 greater than August, 1924, figures show. Page 37.

Chenard-Walcker car, driven by A. Lagache, wins Georges Boillot handicap race at Boulogne, France. Page 38.

Indianapolis Chamber of Commerce plans extensive survey of air development to determine what support would be given an Indianapolis airport. Page 42.

Cleveland Automobile Company announces four new models with price reductions up to \$200 on various types now manufactured. Page 35.

Chromium called perfect substance for headlight reflectors at convention of the Illuminating Engineering Society. Page 35.

Plans of smaller, safer and less costly dirigible are given to Navy Department by Ford Motor Co. engineers. Page 35.

Canadian National Motor Show is declared best ever held in the Dominion. Attendance sets new record. Page 39.

New Federal 2-ton truck will sell for \$500 less than model which it replaces. Page 39.

Sales of automobiles during August in Cleveland are ahead of all former records for that month. Page 39.

*In Next Week's Issue—A \$300 Letter to a Dealer*



# Putting More Cars on the ROAD

By M. WARREN BAKER

**F**EVERISH activity has taken the place of lethargy in highway development in the last year, almost in the last few months. This would appear at first glance to have been the direct result of the unprecedented production volume in the automobile industry in the same period.

This has been one cause, but it has been secondary to the prime reasons underlying the present energetic development. The increase in automotive production has served to awaken city planners to a full realization of the heavy responsibility that is theirs as the result of the search for means to facilitate traffic movement.

Every city in the United States is confronted by the same problem. Where will the increasing number of automobiles be parked? How can narrow city streets, built for the ancient horse-drawn vehicle, bear the tremendous load of traffic that increases every day?

These are only some of the questions that city planners and highway engineers are being called upon to solve and the difficulties of their solution are increasing at a rate proportional to the rapid advance in the number of passenger cars, trucks and buses being built and delivered.

Underground garages, double-decked and even triple-decked streets, parking spaces on the tops of buildings, so-called "super-highways" and countless other devices which have been brought forth in very recent times are first answers to the bogey of highway saturation.

For years, dealers and automobile men in general have feared the time when the power of the public to buy motor cars would be reduced to such small proportion of its present strength as to be almost infinitesimal. There have been many statements and declarations that such a time is not far distant, but such would appear now to be only more of the announcements that would-be prophets have been famous throughout the years for making incorrectly.

On the basis of one car for each average family, only two states of the forty-eight are what could be called saturated. These are California and Iowa. Sales in California thus far in 1925 have not been up to the records



*To make room for more motor traffic the new Wacker Drive in Chicago is being constructed with two levels. This view shows a section of the drive with the upper level almost completed. This vast undertaking required the wrecking of millions of dollars worth of buildings that were erected before automobiles were dreamed of*

of other states, but the dealers there are still in business and are optimistic enough to believe in better times ahead.

Now that energetic dealers are seeing the possibilities of two-car families, a new vista of sales opportunity is opened up and the fallacy of buying-power saturation is removed entirely from the horizon.

There is danger, however, of a condition of highway saturation, especially in and near the great cities of the country. All have been aware of it, and although very little has been said about the matter, at least from the viewpoint of the automobile industry itself, the fear has long been in the minds of automobile men.

## *Traffic Congestion Is Serious*

City officials have become aware that the time has come when something must be done about the congested condition of the traffic arteries. State bodies have been putting forth great efforts to supply sufficient facilities for the flood of traffic that has surged upon them. But these efforts are not yet sufficient. In Wisconsin, for instance, it has been estimated by the state highway department that tourists alone spend \$80,000,000 annually in the state. The profit on this amount of business is more than the state spends on its road system.

City planners have been lying awake nights to find some way out of the dilemma with a modicum of expense. Some of these sleepless nights have resulted in plans for street widening which may possibly care for the traffic for the next five years. Others have caused double- and triple-deck street projects, with heavy traffic on the lower levels, automobiles in the middle and pedestrian movement on the top.

Super-highways, through or around a city, are another

## Street and Highway Builders Show Signs of Catching Up With Traffic Demands as Two-Car Families Increase—Double Deck Streets, Skyscraper Parking Garages and Superhighways Help

comparatively recent development. In some cases, high speed roads are being planned to connect two or more cities. Such super-highways around a town will serve fairly well the car owner who wants to go straight through a city without stopping, but these are few compared to those who want to shop, or see what makes the big city big.

Some relief within the city is being gained by the rapid replacement of the street car by the bus. The bus is able to squirm in and out of tight traffic holes. The street car must stick to the rail and if a nervous pedestrian blocks the way for a moment, there the trolley must stand, holding back all the straining traffic that is so unfortunate as to be behind.

Everyone has long known that country highways are a nice thing to have. Chambers of Commerce and Rotary Clubs have been told time and again that business is given a material boost if the town is on a trunk highway. How much the average tourist spends in each town on the highway has been a favorite subject of assignment by city editors for years.

These same dignitaries are now coming to a realization of the political power of the automobile. Political, because every automobile owner, whether he rides in a Ford or a Rolls Royce, is a brother under the skin when questions affecting his welfare or pleasure are brought forth.

Legislatures have learned to their cost that automobile owner and dealer associations are a potent factor when it comes to defeating proposed legislation inimical to the good of the industry. How long will it be before these same associations demand more and better traffic facilities and back up their demands with their organized might?

In Chicago alone there are now about 345,000 automobiles, trucks and buses. Chicago has 1,941 miles of

pavement, which allows but 30 feet for every vehicle. A great many drivers need that much room to stop in, or park with the least damage to bumpers and fenders.

This figure does not take into account the number of cars registered in the suburbs, which daily drive into the downtown district and return. If all these were included, automobiles in Chicago probably would show less than twenty feet of space "per capita" and that is being cut down with every boatload of cars brought on the river docks.

If Chicago had one car for every average family the number of automobiles on the streets would be about 697,000, or more than twice the number at present. By 1950 the city officials expect there will be 4,500,000 persons resident in Chicago, and on that basis there then would be 1,046,000 motor cars on its streets. The metropolitan area of Chicago, taking a radius 35 miles from the Loop, then would have about 6,600,000 population, and 1,534,000 cars.

A large part of this population will have to live outside the present limits of the metropolis. Many will work in the downtown district as at present, and they will have to have cars to carry them to and from their businesses. Or they will ride elevated, surface or subway trains. They will either have to be given a place to park their cars downtown, or they will not buy them in such proportionate volume as at present. It is much more pleasant and restful to drive to work than to hang on a train strap,

*The old and the new traffic. At right is a section of Michigan Boulevard, Chicago, looking north toward Drake Hotel, photographed from airplane. The double stream of motor traffic is shown. Below is State Street, Chicago, in the days when that street carried the kind of traffic for which it was planned*





and the owners will demand parking space if the automotive industry fails to do so.

In either event it is foregone that parking facilities are absolutely essential both to the dealer and owner and the dealer might as well take the first step to obtain them. His organization is less unwieldy than is the owner's to perform such a service. Every day that brings good parking facilities closer, is a day of additional business for the dealer, because it will create more two-car families.

Newspapers are taking up the fight in Chicago. In a recent editorial on highways radiating from Chicago, the *Chicago Tribune* said:

"The Dunes road furnishes only one example of the congestion to be found on all the highways radiating from Chicago. All of them should be widened without delay; and it is our opinion that even 40-foot roads in this region will be inadequate to handle the traffic with safety."

A plan whereby Boston's narrow streets will have less of a traffic burden to bear has been put forward by the Boston elevated and street railway officials. The companies have begun purchasing land in the suburbs adjoining their terminals, for use as parking grounds.

Boston expects that about 400,000 cars will be operating on its streets by 1930. Immense sums would be necessary to increase the streets to the width necessary to handle this traffic. The officials are studying the possibilities of removing street cars from the thoroughfares and substituting buses.

#### *Boston's Problem*

It is estimated that about 140,000 cars enter and leave Boston every day. Tourists materially increase this number during the summer months. All the other New England cities are facing the same difficulty and the jam of traffic by 1930 is certain to be tremendous.

The street and elevated railway companies are of the opinion that the time to take steps toward the prevention of an unendurable situation is the present. Planning commissions have been attempting to correct existing evils and prevent future ones, but they are still confronted by the fact that any drastic impositions will keep a great many persons out of Boston who may wish to transact business there.

Indianapolis has just passed an edict called the "Thoroughfare Ordinance" which is expected to simplify the traffic situation there. The ultimate expenditure of \$30,000,000 is planned for widening streets, building new



*Type of skyscraper parking garage springing up in large cities. This is the new Auto Centre at Los Angeles, all the floors of which are devoted to parking and storage of automobiles, day and night*

ones and making general improvements in traffic conditions. The ordinance also ratifies a plan whereby the city and the Belt Line railroad will co-operate in elevating the railroad tracks and eliminating grade crossings. The latter have not only been dangerous, but have held back extensive development in certain business sections of the city.

Possible fore-runners of the time when every motorist will be able to park within something like walking distance of his destination are to be seen in the tendency to build garages exclusively for parking and service. Such garages can be and are being built as high as office buildings, and are equipped with ramps so that the motorist can drive from ground floor to roof, or with high speed elevators.

Underground parking garages are another recent development. Still another is the widening of little-used streets to allow parking in the center.

Such means give some relief, but if the motoring popu-

*(Continued on page 43)*



*The rush of motor traffic at Fifth Avenue and Forty-second Street, New York*



# Fresh Merchandise in a Clean Store

*Slick Up Includes a Complete Overhauling of Stock to Make It Complete With Seasonal Goods and Articles in Demand*



*An example of how to slick up and display accessories*

**S**LICK up is not merely for the floors and walls and shop of the automotive establishment. We have already discussed the importance of going over the salesroom to give it an inviting and attractive appearance. If the sales room is slicked up, redecorated, equipment rearranged, displays changed and brightened, much has been done to mark the store as a progressive business institution that does not shut up shop with the coming of cold weather. The proper overhauling of the shop, as outlined in last week's *MOTOR AGE*, will do still more to put the place in shape for profitable business this winter.

But the stock of merchandise itself requires attention. A busy summer has its effect on stocks. New cars have been coming in and going out and accessories and supplies have been sold in unusual quantities. The result is likely to be a somewhat unbalanced stock. Time probably has not been available for a complete and regular checking of the stock on hand in order to keep it up to date.

The result is likely to be a shortage of certain popular items, an accumulation of slow moving goods and lack of seasonal goods that have not been much in demand this summer, but will be from now on.

The first step in the slicking up of the stock should be an inventory to determine just what goods are on hand. The car dealer won't have much trouble listing his new cars. They are usually right out in front where he sees them every day and this summer sales have been so good that in most establishments the cars have moved right on to buyers. It would be well, however, to check up to see how long the cars have been on hand. If open cars are on the floor and have been there for some time a special effort should be made to move them at once. In fact any cars that have been hanging around long enough to begin to feel at home should be sent out to look for a new boarding house.

The used car stock should be given the same sort of treatment and a little more of it. A large used car stock at this season should be viewed with alarm and about the slickest thing any dealer can do is to send a lot of the old-timers away indefinitely.

The right sort of slick up activity will help move both

new and used cars. For instance, if the dealer has on hand one or more open cars that have been standing in a corner and collecting dust because nobody wanted them his first step in slicking up will be to wipe them off and give the paint a chance to shine. Then he will put the cars out where people will see them and then probably he will put on winter enclosures, install a heater and otherwise make the open vehicle into a comfortable enclosed car.

Paint will help to slick up the used cars and the open ones among them can also be made more salable by the installation of winter enclosures and heaters, or the fitting of new side curtains.

Probably the greatest need for slicking up will be found among the stocks of accessories, equipment and supplies. There are vacant spots in the shelves, worn and disfigured packages and merchandise bearing the marks of dust, rust and corrosion. The vacant spots indicate a healthy business, for sales have been good, especially in some lines. The worn and disfigured packages indicate merchandise that was overstocked or for which there is no demand. This sort of merchandise should be moved as soon as possible, by the bargain sale method if in no other way.

New merchandise to fill out depleted lines and the elimination of shop worn stuff are essential steps in slicking up a store. Customers do not like an untidy store, and disorderly shelves and dirty or damaged merchandise give the aspect of untidiness even more than actual disarrangement and dirt. A clean, fresh and complete stock of merchandise is a distinct asset and a valuable attraction for the dealer at this season.

The check up of merchandise should take into account the seasonal needs of customers. Colder weather is approaching and the automobile needs winter accessories just as its driver needs winter clothing.

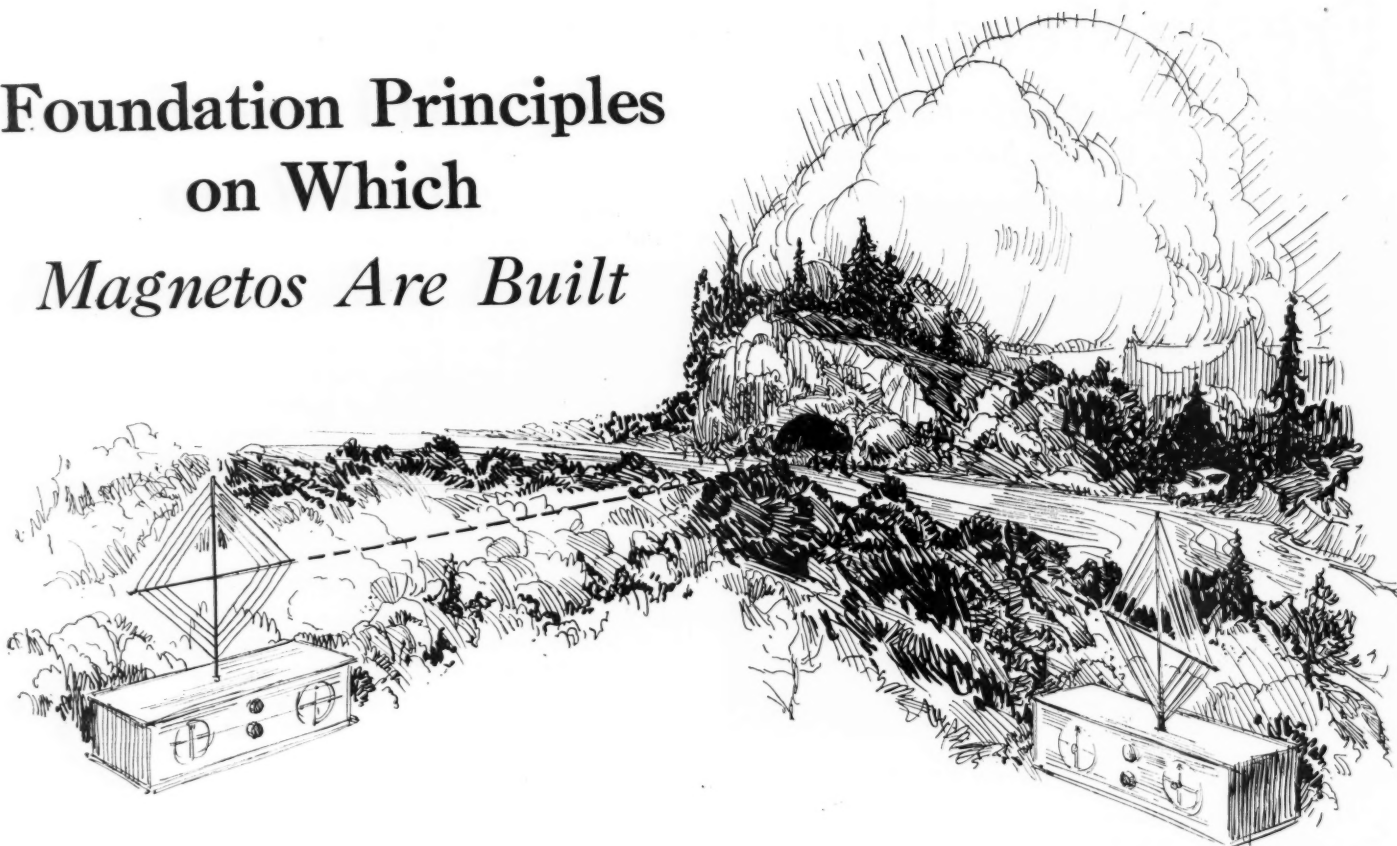
It is merchandise of this nature that the dealer, in his slick up activity, should make certain to stock in ample quantity.

There is another seasonal appeal that the merchant cannot afford to overlook. Successful campaigns in the past  
(Continued on page 34)



*In need of slick up. This was arranged by Ford Motor Co. of Milwaukee as a lesson to dealers. This photograph and the one at top of page by courtesy of David Lupton's Sons Co.*

# Foundation Principles on Which Magnetos Are Built



## *The Red Head and Valvy Tow a Stalled Race Car Back Home and Show Its Owner a Few Things About Ignition*

By A. H. PACKER

OVER the rim of Coal City rose the sun, its fiery eye gleaming with a mischievous grin. Peering into the upper windows of Jake Pender's garage it saw, through the grimy pane, two sleepy lads, the Red Head and the Valve Grinding Fiend.

The Red Head could sleep through anything, but Valvy stirred uneasily under the sun's piercing glance. Then to his half awakened senses came the sound of a bell. "The clock," thought Valvy and groped to shut it off. But the ringing continued.

Valvy sat up. "What in the dickens is the phone ringing for, this time o' day," thought Valvy as he slid into some clothes and ran down stairs to answer.

Five minutes later, Valvy came tearing back, through the shop and up the stairs yelling as he came.

"What the Sam hill's bitin' yuh?" Red wanted to know, angered at being disturbed.

"P-p-p-plenty," Valvy gasped. "They g-g-got 'em."

"Got what, fleas?" said Red. "You certainly act as if you had 'em and no mistake."

"That gang that got you," panted Valvy, still puffing.

"Sit down and speel it," said Red. "Was that Sandy on the phone? I thought at first you'd gone loco or somethin'."

And as the Valve Grinding Fiend calmed down he managed to tell what Sandy had told him over the phone.

"Sandy put Federal agents on their trail. They took a tip from our radio experience and set up some special receiving sets at different places. Then they used a special kind of set with a loop aerial that hardly receives at all unless the loop is pointed the right way. At first they had no luck for they had to get their settings right and their loop pointing in the right direction before they could

pick up the long wave messages being sent out from the gangsters' stronghold.

"Then one night they found 'em with one of the sets. That gave them the dial settings. Then they tuned in the other set the same way and turned the loop until they had 'em.

"It's too deep for me," said Red, "but I get the general idea. After they had the loops pointed from two directions they probably worked it out on a map by trigonometry and figured where the fellows were in hiding."

"Yeh," said Valvy. "Sandy said something like that.

### BILL FIXIT STORY No. 11

PREVIOUS installments in this series by A. H. Packer were published March 19, April 2, April 16, May 7, May 21, June 18, July 9, July 30, August 13 and September 3, 1925.

SYNOPSIS: Bill Fixit's electrical trouble shooting men start on a trip in a Speedway car. They stop at various places along the way and at the Welsh mines are requested by Sandy, the foreman, to help out in fixing up a gasoline pumping engine. While there the money they had is stolen from the car, so they are forced to seek employment in Coal City with Jake Penders, the local electrician.

While at Jake's place a customer buys a tire, paying for it with a bill that Red afterwards recognizes as one stolen from them. Red goes after a job of wiring trouble that Jake had previously fallen down on, fixes it and then tells how it was done. At other times he explains electro-magnets, ignition principles, condenser construction and testing a systematic method of shooting ignition trouble on the car and a method of checking firing order and timing.



Anyhow they spotted the place, and the only way to get to it is up Crooked Creek. The bottom is hard and the water shallow and they even run their cars up to the cave that way."

"That's all very nice," said Red. "It means safer living from now on around this dump, but it doesn't mean much to us."

"It does, too," said Valvy. "I nearly forgot. You know that bird that fell down on the watchman job the night they blew up the pumping engines. Well he was one of the gang, but no one knew it. He had that job at the Welch mines so he could keep track of Sandy, but he slipped just once. He was the fellow that bought a tire here with one of the bills that was in our roll. When Sandy heard about it and saw him roll up with a new tire on his car he put two and two together, began to do a little detective work on his own account and now this fellow has confessed and we will get most of the jack back again. The gang has been so hemmed in for fear of the law that they haven't been able to get out to do much spending."

"What a change," the Red Head remarked. "A few months ago we started out like a couple of kings, saying good-bye for a time to Bill Fixit and the old gang. Then we were cleaned by a crook and were glad to get a job in this measly town, board with the hunkies and later sleep in the attic. Now we are sitting pretty on top of the world again. And so it goes."

"And where do we go from here," Valvy wanted to know.

"Now that it's possible, I almost hate to leave," said Red. "I'm almost getting fond of Jake, but I suppose we better be moving along in a day or so, finish up our touring spree and get back to Westville."

Several mornings later, Bill Fixit's roaming electricians said good-bye to Jake, shook the coal dust of Coal City from their tires, stepped on the gas and sped away in search of more adventure.

### The Scene Changes

As the day wore on the mountainous mining country was left behind. Low lying hills and pleasant valleys took their place. The outcropping rocks became fewer and fewer and the soil richer. Miners' shacks gave way to substantial farm houses and on every side there was evidence of a bumper harvest and rural prosperity.

Lunch was obtained in one of the small towns. Red had seen visions of fried chicken, at least, as he drove through the thriving community, but when they stopped at the small restaurant, all that was left was corned beef and cabbage.

"Suppose we see if we can put up at some farm house," suggested Red. "I'm fed up on this city cooking gone to seed. I'd like to get some real grub for once."

Valvy was about to answer when a humming whine burst upon their ears, soon to change to the roar of an exhaust from an unmuffled engine. Looking back Valvy saw a home made race car with its embryo race driver stirring up the road for all he was worth. The car passed with a whirl and disappeared over the hill, while the Speedway car with the two adventurers jogged on at its accustomed pace.

Five miles farther on, however, the two trouble shooters were surprised on rounding a curve to see the home made racer stalled by the side of the road, and the driver disconsolately poking around under the hood. Red pulled up and the boys got out to see if they could be of assistance.

Barney Oldfield Smith was glad to get some help, for while clever at assembling his car he was shy on electrical knowledge and when the magneto failed to do its part he was stuck as badly as the car. The cause of the trouble was not evident even to Red and Valvy and as Smith lived but

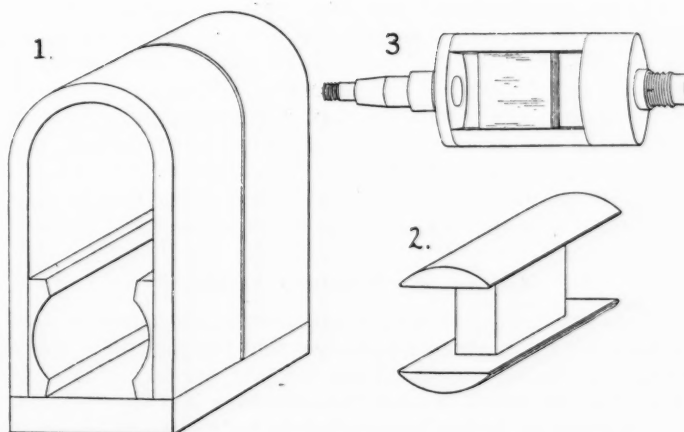


Fig. 1. Typical magneto frame. The base is usually brass, so that magnetism is forced through the armature. Fig. 2, magneto armature core. Fig. 3. Magneto armature core with end plates and shafts attached

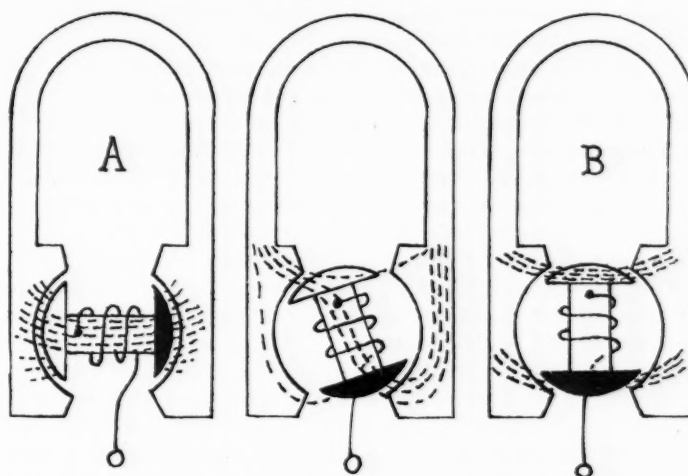


Fig. 4. Changes in the path of the magnetic lines of force as armature makes a quarter turn

a few miles up the road it was decided to tow the car to the farm where Smith lived and do the job right.

Red had another reason for handling the job that way and his sagacity was proved in the results, for the work on the magneto kept them busy until supper time and resulted in their staying at the farm for the night.

The next morning it was found that the magneto armature had a shorted condenser so there was nothing much that could be done until a new one was received. Red wired Bill Fixit at Westville to send one by parcel post and was about to show young Smith how to install it, but Smith was not satisfied to let it go at that.

"Can't you fellows stick around a while? We can hunt squirrels over in the woods or fish in the river. Of course if you have to be goin' I may be able to get by with it, but—"

"Red had been thinking of the fried chicken and apple pie they had stuffed themselves with the night before. It was almost too good to be true. Would they stay? "Yes, I guess we can," said Red. And so it was decided.

"And when you're doing nothing in particular," continued Smith. "You can show me something about magnetos, not only what's wrong with this one, but how other kinds work, too."

"That's a big contract unless you know something about electricity," said Red.

"I know a little," said Barney. "In school we had some experiments with coils and I have played with the battery ignition system on Dad's car, but I never tinkered with magnetos until I got one for this speed bus."



"In the ignition coil," said Red, "We get the high voltage produced by changing magnetism and the changing magnetism is produced by change of battery current in a heavier coil known as the primary. When it comes to magnetos we again have to have changing magnetism, as far as the coil of wire in the machine is concerned, but we get it by rotation."

"Many magnetos are made with a frame like this." And Red made a sketch (Fig. 1) to show what he was driving at.

#### Center of Armature Smaller

"The two U-shaped pieces are permanent magnets and in between their ends or poles we find the magnetic effect or field is the strongest. Then we take another piece like this (Fig. 2) which we call the armature and we rig it up on bearings so it can be rotated in between the poles of the permanent magnets. The center part of the armature is smaller than the rest and provides a place on which the coil or coils can be wound. At the end of the armature core it is customary to fasten two plates which each have shaft extensions, so that the complete armature core with shafts attached looks like this (Fig. 3).

"In this sketch (Fig. 3) the wide part at the right is a sort of hollow cup in which the condenser is carried, but we will not consider that part of the device much at this time. We first want to see how the current is generated.

"In this other sketch (Fig. 4) we have an armature shown in three positions and on the armature is a winding. At A the armature is in such a position that the lines of magnetic force in going from one magnetic pole to the other go through the center of the coil. As the armature turns to the right or clockwise it gets to the position shown in the center sketch.

"The armature is now not such a good path for the magnetism as formerly. Some of the lines of force still go through the coil, but others go across through the ends of the armature core. When the armature has turned still further as shown at B we have all the lines of magnetic force going through the armature pole tips and none through the coil.

"From this we can see that as far as the coil is concerned the magnetism has changed from a maximum to zero in one quarter of a revolution. Another quarter turn would again permit the magnetism to all go through the center of the coil, but in the reverse direction as far as the winding is concerned. And as changing magnetism in a coil generates a voltage we conclude that there will be a voltage generated in the coil. We also conclude that as the magnetism goes first one way and then the other in the coil, that the voltage will be first in one direction and then in the other, so that current taken from the coil would be alternating current.

"In this other sketch (Fig. 5)," Red continued, "We have some curves that look like spider webs, perhaps, but if we look at them carefully we may be able to figure the armature position that gives us the peak current and therefore the armature position at which the interrupter points should operate.

"At the bottom of this sketch (Fig. 5) we have the armature in different positions which it would take in rotating right hand or clockwise, the first two of these positions, A and B corresponding to A and B of Fig. 4. We will next use a horizontal line X-Y and in line with A we will lay off a distance X-L to represent in height the number of magnetic lines of force which go through the coil on the armature when in position A.

"The distance of the magnetic curve above the line will then represent the number of lines of force going through the coil in one direction while the curve below the line will represent the magnetism through the coil in

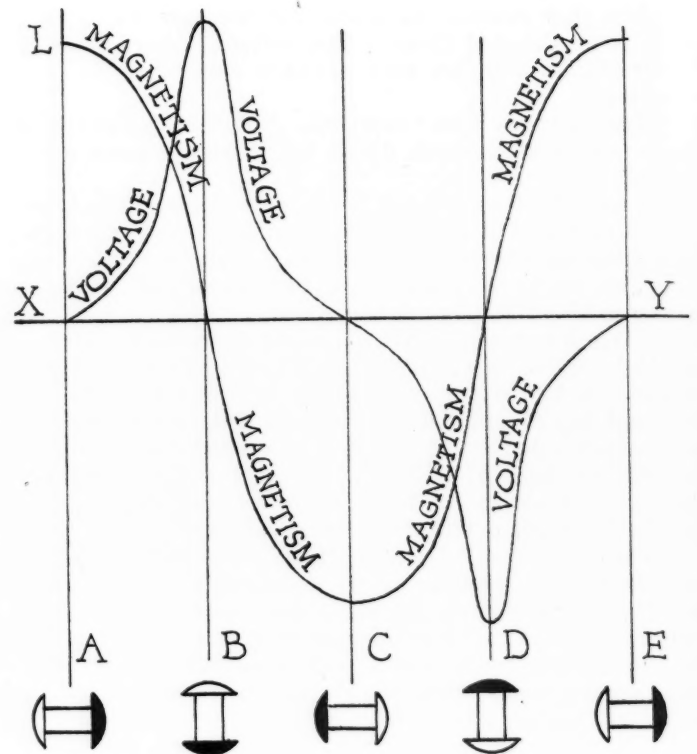


Fig. 5. Armature positions which give the peaks and valleys in the magnetism and voltage curves

the reverse direction. At position B we have lines of force through the pole tips only and none through the coil, so our curve crosses line X-Y, the value of the magnetism being zero.

"At position C we have the reverse of the condition of position A, so the curve reaches a low point, while at D the magnetism is again zero and at position E we have the same condition as at A."

"Then we get the greatest voltage from the magneto with the armature crosswise, I suppose," said Barney.

"You're forgetting something," said Red. "Is it magnetism or change in magnetism that generates the voltage?"

"Gee, you're right," answered young Smith. "I don't know the answer yet, but what I said first was wrong, all right."

"We'll have the answer in a minute when we draw the voltage curve," continued Red.

"The high point on the voltage curve will be where the magnetism curve is changing fastest. In line with A, for an instant the magnetism is constant so there the voltage is zero. On the other hand the magnetism curve is steepest, and therefore is changing fastest at points in line with B and D, so one of these is our positive high point and the other the negative peak of the voltage curve."

#### A Delicacy in Sight

Valvy had heard it all before and was beginning to get restless. "What's that funny noise over by the river?" he wanted to know. "Sounds like dogs barkin'."

"Them's bull frogs," said Barney. "What d'ye say we pass up the magneto stuff for a while and go get a bunch of frog legs?"

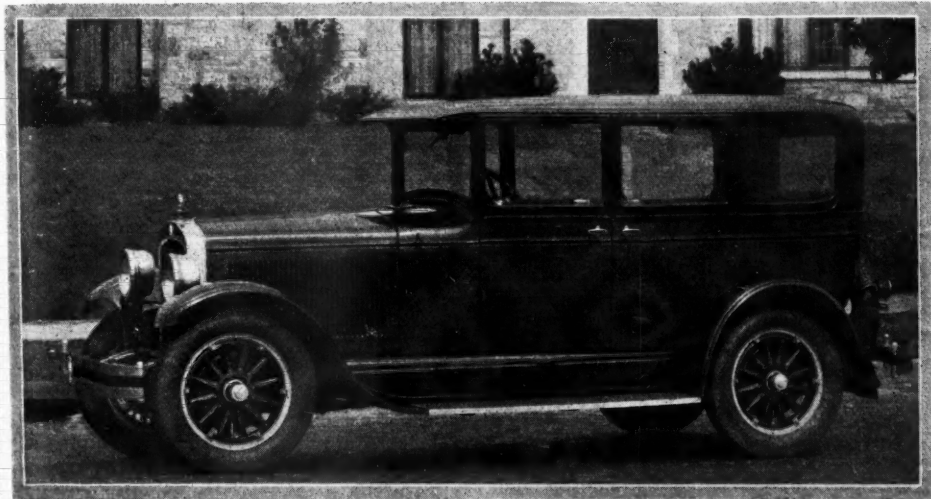
"Ugh," said Valvy. "Do folks really eat 'em?"

"I'll say they do, they're better than chicken," volunteered Red, more experienced in the ways of the world.

"Better than chicken," cried Valvy in astonishment. "It sounds fishy to me, but I'm willing to be shown." And a few minutes later the three lads were busy hunting through the tall grass by the river's edge.

# Jordan Announces a Lighter Eight

*Lower Priced Line Has All Steel Bodies and Specially Designed Engine  
Developing 64 Brake Horse Power*



*New Jordan Eight 5-passenger sedan. Metal pillars and narrow door frames result in minimum obstruction of driver's vision. Bumpers and spare tire not included in list price of \$1845*

By LESLIE S. GILLETTE

THREE new standards have been set by the Jordan Motor Car Company in presenting its new series J model with eight-in-line engine. This is the lowest priced car of this type yet produced, it is the shortest and lightest passenger car chassis employing an eight in line engine and is the first car selling above \$1,500 using an entire line of all steel bodies. Although the wheelbase of the new car is 9½ in. less than that of the larger car it is said that the interior space in the bodies is almost the same due to the all steel construction and special design of the portion of the body adjacent to the engine.

The all steel construction of the body makes possible improved vision due to smaller corner posts. Removable upholstery is incorporated in the construction, this facilitating cleaning, and the repairing of body dents.

The interior of the sedan is decorated with inlaid walnut trim, flush type vanity cases and silver hardware of New England design. A cowl ventilator is included and the windshield is of the one-piece type.

On the Playboy model the collapsible top is easily removed, while the curtains are carried in a door pocket. Upholstery in this model is genuine hand buffed leather while the exterior finish on both models is lacquer.

The engine is designed by the Jordan company and built by Continental, the bore and stroke being 2⅞ in. by 4¼ in., giving a piston displacement of 246.6 cu. in. The engine develops 64 b. h. p. at 3,000 r. p. m., while the rated S. A. E. horse power is 26.4.

This power plant, in one of the se-

dans is capable of showing a speed range in high gear of from 2 to 68 miles per hour, without appreciable vibration at any speed. Gasoline consumption is said to be from 16 to 18 miles per gallon and oil consumption from 600 to 800 miles per gallon. Cylinder head is detachable and the cylinders are cast in a unit with the upper half of the crankcase, while the oil pan is of pressed steel. Four point suspension is provided as in the older model.

The crankshaft has five main bearings and is provided with a Lanchester vibration damper. The rear main bearing is 2½ in. in diameter while the others are 2⅝ in. in diameter, each bearing being 1½ in. long.

Connecting rods have a center to center length of 9¼ in. there being at the lower end, babbitt lined bearings 2¼ in. in diameter and 1½ in. long. Phosphor bronze bushings are used in the

upper ends of the connecting rods. Piston pins are 2 17/64 in. long and 55/64 in. in diameter. Pins are locked by means of a set screw and a snap ring at the end of the piston pin.

Cast iron pistons are used, these being 3⅝ in. long and fitted with three rings, all located above the pin. Oil holes are drilled through the piston wall beneath the lower ring.

The generator and camshaft are driven by a silent Morse chain. By graduating the diameters of the five camshaft bearings from 2⅝ in. down to 1¾ in. it is possible to withdraw the camshaft through the front of the engine. The three center bearings have a length of ⅞ in. while the length of the rear bearing is 1 in., the front bearings being 1½ in. long.

## Valve Timing

Valves have 45 degree seat face angle and ⅝ in. lift. The inlet valve has a diameter in the clear of 1½ in., the exhaust valve diameter being ⅞ in. less. Valves are operated by mushroom type tappets. Double valve springs are used. The valve timing is as follows:

Exhaust closes 8 deg. after T. D. C.

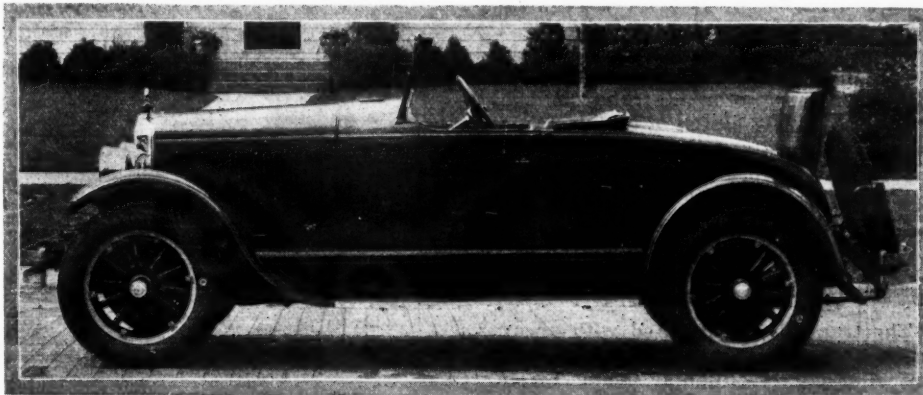
Exhaust opens 40 deg. before B. D. C.

Inlet opens 8 deg. after T. D. C.

Inlet closes 40 deg. after B. D. C.

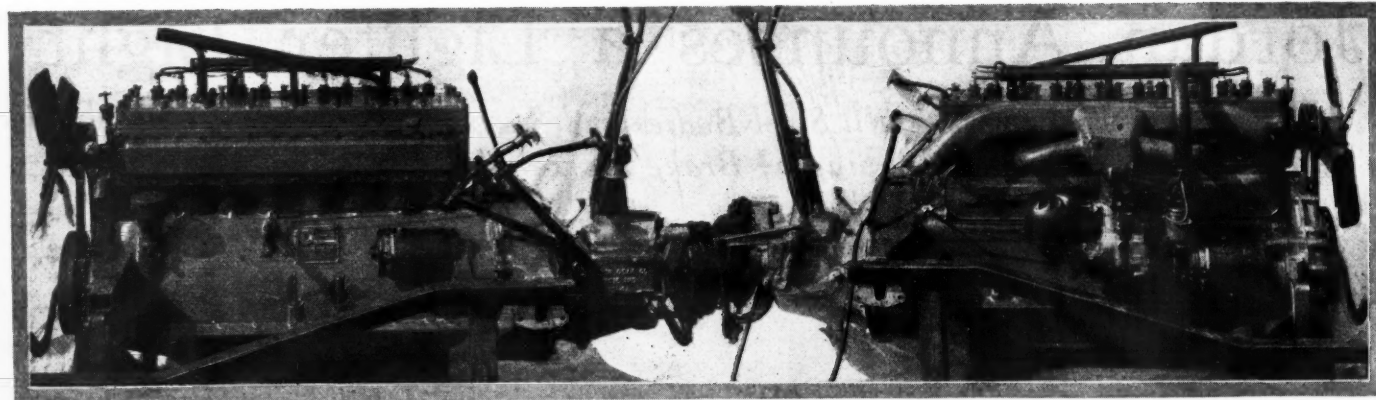
A gear type pump is used to force oil to the main bearings and through holes in the crankshaft oil is then carried to the connecting rod bearings. Passages in the crankcase web carry oil from the main bearings to the camshaft bearings. The crankshaft holds 7 qts. of oil when filled to the proper level.

Oil from the crankcase may be emptied by operating a plunger at the side of the engine, this plunger opening a valve in the lowest point of the oil pan. The same construction is used on the larger eight. Along side of the plunger is a bayonet type gage for measuring the amount of oil in the crankcase. The



*Playboy roadster in new Jordan Eight line. This model has all-steel body and lists at \$1695. Detachable top, not shown in picture, is included. Bumpers and spare tire are extra*





At the left is shown the left-hand side of new Jordan power plant, Vibration damper is seen at front of crankshaft. Plunger for dumping crankcase oil is at right of oil gage under engine name plate. At the right the right-hand side of the Jordan power plant is shown with rotary air cleaner and combined ignition and generator unit

water pump and fan are built in one unit, the drive being by means of a belt. Belt adjustment is taken care of by means of a movable flange on the fan pulley.

The method of attaching the radiator and shell is somewhat different from that used on the larger car. The radiator core is carried in a cradle which is fastened by means of studs to the front cross member. Leather washers are used to assist in absorbing the shocks and prevent straining the radiator. Water capacity of the entire cooling system is  $4\frac{1}{4}$  gal.

#### Fuel System

The fuel system includes a Stewart vacuum tank, a 17 gal. tank at the rear of the chassis, a Gas-Co-Lator and a Stromberg model OX-2  $1\frac{1}{4}$  in. carburetor. A United air cleaner is also fitted as standard equipment. The intake manifold is  $1\frac{1}{2}$  in. inside diameter and is connected with the exhaust manifold to form a hot spot.

American Bosch generator and starter are used as on the larger car. The starting mechanism includes Bendix drive and a 2 to 1 gear reduction, giving a total reduction of 22 to 1. The generator has a field fuse to protect it in case of open circuit between the generator and battery. The ignition unit is provided with automatic advance and is driven from the rear end of the generator.

The electrical units also include a Willard battery and Champion spark plugs. The firing order of the cylinders is 1-6-2-5-8-3-7-4. Ignition cables are carried in conduit.

The engine power is transmitted by means of a Long clutch of the single dry plate type while a Warner Gear Co., model T-69 transmission is used. The gear ratios are as follows:

- Low: 3.12 to 1
- Second: 1.69 to 1
- Third: 1.00 to 1
- Reverse: 3.78 to 1

The transmission is fitted with an approved type of transmission lock. The propeller shaft is tubular, being  $1\frac{1}{4}$  in. in diameter and provided with metal oil type universal joints at each end, these being made by the Universal Drive Shaft Co.

A Timken rear axle is employed, this being of the semi-floating type, employing a spiral bevel gear drive, the power being transmitted through the springs by means of the conventional Hotchkiss construction. The bevel pinion is straddle mounted. Side thrust is taken by two Timken roller bearings at each wheel. Standard gear ratios on the Playboy and sedan models are 4 5/11 to 1 and 4 7/11 to 1 respectively. A Timken front axle is also used, the "T" section changing to cylindrical near the knuckles to take the torque due to the front wheel braking action. Ball thrust bearings carry the load on the knuckles to assist in steering and parking.

A model 80 Gemmer worm and sector type steering gear is used, the reduction being  $11\frac{1}{2}$  to 1 which is specially adapted for balloon tires. The tires used are 30 by 6 in.

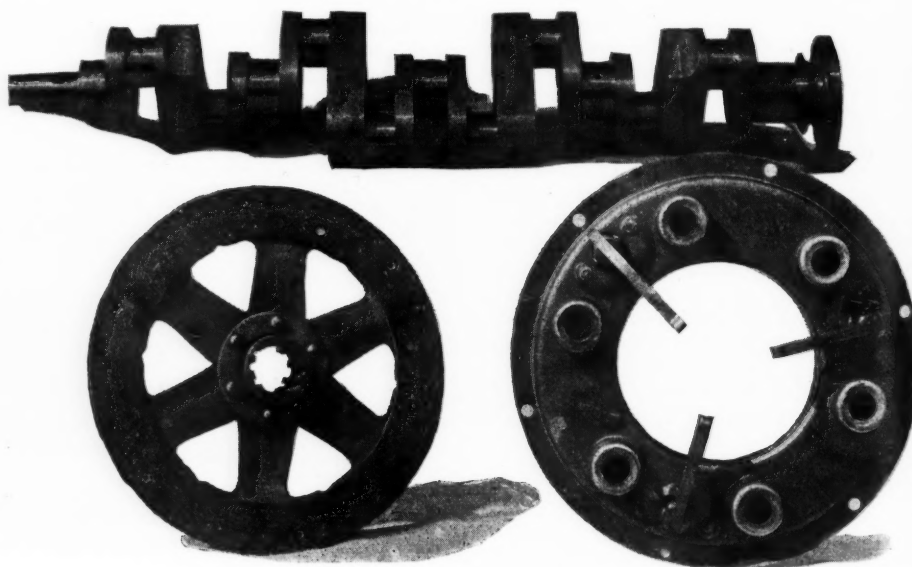
Many parts of the Lockhead hydraulic brake used on the new car are interchangeable with the older model. Dimensions of the drum are  $14\frac{1}{4}$  in. outside diameter and 2 in. wide. The emergency brake is at the rear of the transmission the drum being 8 in. in diameter by  $2\frac{1}{2}$

in. wide, the brake being of the external contracting type.

Springs are of chrome vanadium steel 2 in. wide. The front spring is 37 in. long and the rear spring 55  $\frac{3}{4}$  in. long. Self lubricating shackle bolts are employed, lubrication of the chassis being taken care of by means of the Alemite system.

Road lighting is provided by means of Edmunds & Jones headlights which are also equipped with 4 c. p. bulbs for city driving. A combination tail and stop light is also provided. A 75-mile Stewart speedometer and clock are mounted in the right hand panel on the instrument board while an oil and gasoline gage and ammeter are in the left hand panel. The following items are also included as standard equipment; automatic windshield cleaner, rear view mirror, transmission lock, cowl ventilator, motometer, set of four shock absorbers and combined vanity and smoking cases on the closed car.

Except for several minor refinements the larger car is continued without change and will in addition to being companion car to series J model, round out the Jordan line for the coming year.



Top: Five-bearing crankshaft of new Jordan; bottom: Parts of the single plate Long clutch used in new Jordan



# Important Improvements Made in Marmon 74 Chassis

*Double Fire Ignition, Oil Purifier and Self Lubricator Added to Increase Power Output and Performance. Fuel and Oil Mileage Also Bettered*

By B. M. IKERT

THREE major improvements have been made in the Marmon 74 chassis. They consist of a double fire ignition system; three-way oil purifier and a self-lubricating system for the chassis.

As a result engine performance has been materially added to in the way of better acceleration, better fuel economy, entire absence of the so-called heavy fuel knock, greater oil mileage and prolonged life of the units.

The results which have been attained with the new Marmon cannot be attributed to a single improvement, but rather to a series of improvements, the combination of which has worked out to good advantage. Thus, the Marmon Company states that with its valve layout type of manifolding, double fire ignition and oil purification method the following results have been obtained:

- 1.—Increased gasoline economy.
- 2.—Increased power.
- 3.—Increased acceleration.
- 4.—Cooler exhaust valves and manifold because of more complete combustion during the down stroke of the piston.
- 5.—Less carbon deposit.
- 6.—Less tendency towards crankcase oil dilution, because the fuel oils are burned more completely.
- 7.—Smoother engine power.
- 8.—Absence of spark knock under all conditions.

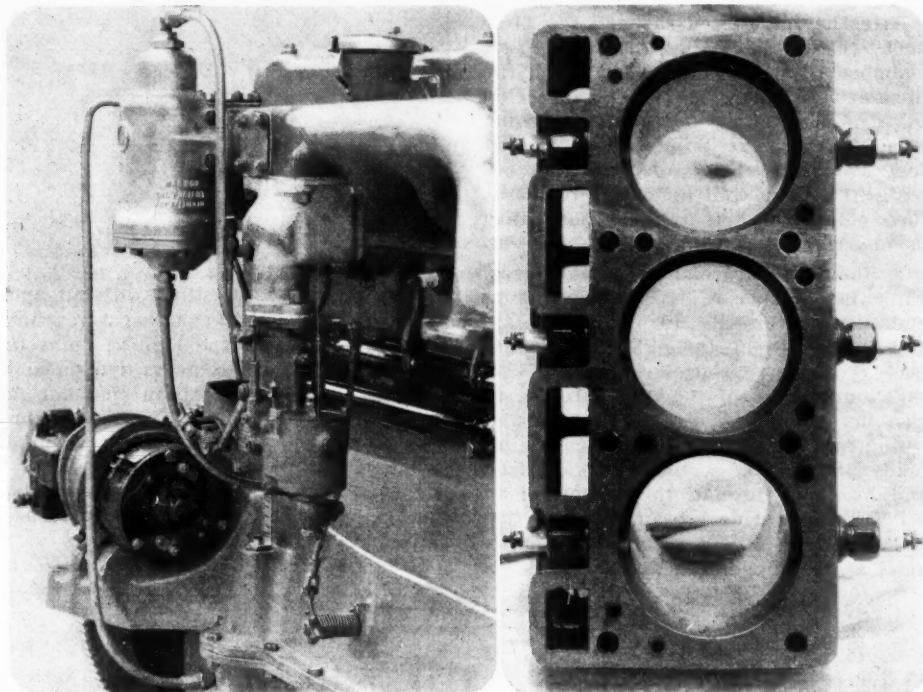
## Additional Spark Plugs

In the double fire ignition, system two plugs are used per cylinder, these being on opposite sides and firing at the same time.

The system consists of a battery and generator on the rear of which is mounted the distributor head having 12 contact points with six pairs of wires going to the twelve plugs.

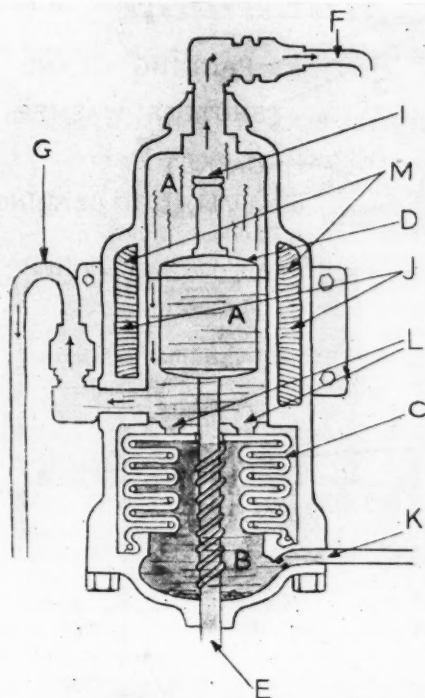
The current goes to two sets of breaker points, one for each set of plugs. Each breaker controls the primary low voltage current to each coil. Each coil then feeds the high voltage current to the contact points in the distributor head, the forward coil being connected to the center point and the rear coil to a point offset from the center and operating through a carbon brush running on a metallic ring in the distributor head.

The two high tension contact points in the distributor head carry the current to each of the two rotor buttons on the rotor and these two buttons in turn determine the cylinder that is to



*Oil purifier installation on new Marmon; at right is view of one of cylinder blocks showing two spark plugs to each cylinder*

be fired when the breaker points make contact.



*Marmon 3-way oil purifier—sectional view*

In designing its oil purifier the Marmon company sought the removal of the four following elements:

- 1.—Abrasives.
- 2.—Carbon.
- 3.—Water.
- 4.—Low quality fuel oil.

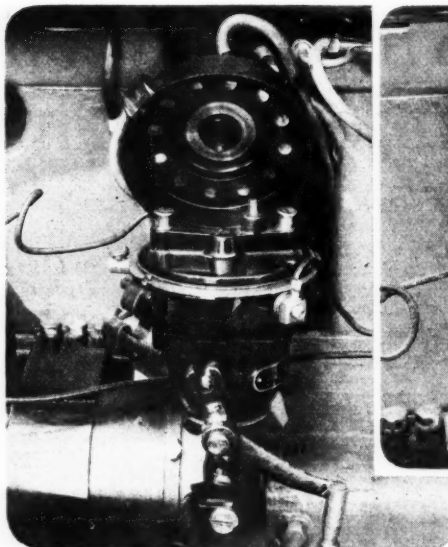
Naturally the removal of abrasives is easier to accomplish with hot oil than with cold oil, since the hot oil will flow through a much finer filter with the results that the finest particles of abrasives are removed. To get proper heat to the purifier the Marmon three-way purifier is fastened to the exhaust manifold between cylinders 4 and 5 and the exhaust gases from cylinders 5 and 6 pass around the distillation chamber A through the gas passage J. The purifier consists mainly of two chambers, A, the upper or distillation chamber and the filtration chamber B.

Four tubes lead to the purifier. Tube F from the upper chamber carries fuel and water vapors to the carburetor intake to be drawn into the engine along with the mixture. Tube K is the oil feed tube, the oil being fed under pressure from the pressure regulator to the purifier. E is an air inlet tube, leading from the crankcase up through the center of B into the upper part of A, creating a condition of atmospheric pressure during the time that oil is

being drained from A. Tube G is a syphon which automatically drains off the oil from A each time the float D rises, permitting atmospheric pressure to exist in A. The asbestos filtering sack C prevents abrasive from being fed back into the oil. I is an air valve operated by the float D. The filter sack C has a very large area and the passage of oil through it is consequently very slow. In the process of filtration, all carbon suspended in the oil is removed.

After having passed through the filter sack, the oil passes out of the top of chamber B into chamber A, through the openings L. Here the oil is subjected to a much higher temperature, which is regulated to a point where it will just evaporate the water and fuel oil, but still remain well under the temperature point where there is a possibility of charring or breaking down the oil.

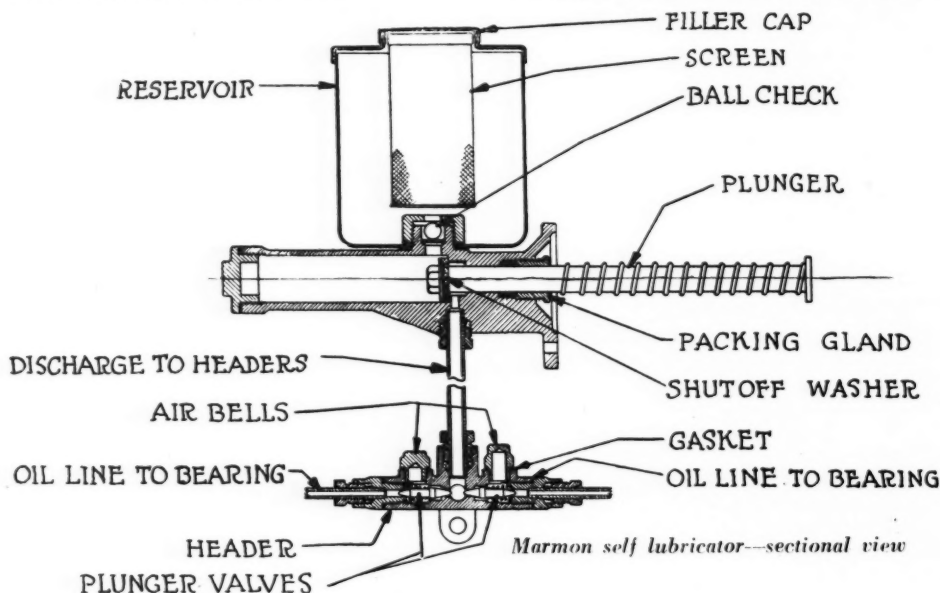
As the temperature of the oil increases, while in chamber A, water, which is in emulsion, is quickly turned to steam and is drawn off through the vacuum lead F to the carburetor opening. As the temperature of the oil continues to rise in chamber A, the process of distilling fuel oils out of the lubricating oil takes place. These, too, are vaporized and pass off through the vacuum lead F. The lubricating oil continues to rise in chamber A until it reaches a level almost at the top of the float D.



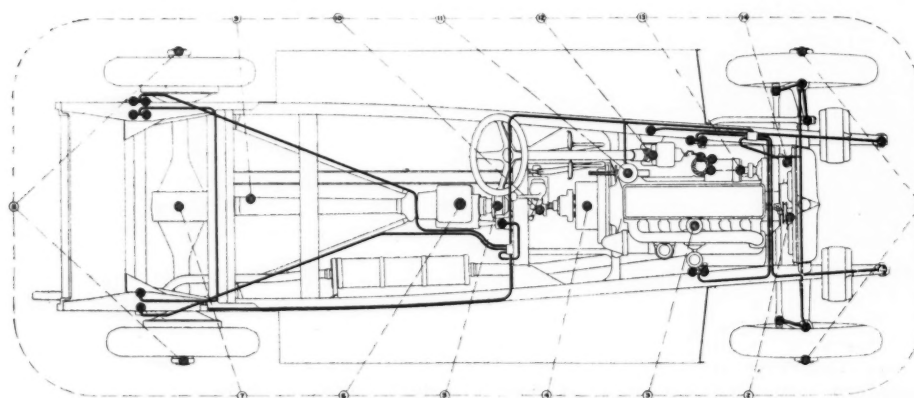
Picture above shows Marmon double ignition distributor disassembled. Note six-sided cam operating two breakers, each one controlling a coil for double ignition. Picture at left shows two rotor buttons and 12 contact points

Also the tube G is filled with oil and when the lubricant in chamber A reaches a point, level with the highest point in tube G, this tube becomes a syphon and seeks to draw off the oil in chamber A. Due to the action of the carburetor intake on the end of the tube F, a vacuum is created in the upper part of chamber A. So long as this vacuum exists, tube G, the syphon, cannot become operative.

It is therefore necessary to create a



Marmon self lubricator—sectional view



Marmon self lubricator chassis layout

condition of atmospheric pressure in the upper part of chamber A, and this is done by means of the float D. When this float rises, the valve I at the top of tube E is opened and air rushes in from the crankcase through E to create atmospheric pressure in chamber A. At this point, the syphon in tube G becomes operative and draws off all of the oil in chamber A. With the oil level again lowered, float D lowers to close the valve I and the operation of distillation in chamber A is repeated.

### Displacement Type Plunger Pump

The Marmon self lubricator takes care of all spring shackle bearings, all front axle bearings (except wheel bearings), tie rod bearings and two drag link bearings. The system makes use of a displacement type plunger pump located on the dash and operated by the driver's right foot. Oil is fed by gravity into the pump from a tank, a ball check preventing a return flow of oil to the reservoir when the plunger is operated.

From the pump the oil is forced to three main points on the chassis called "headers" for distribution to the various bearings. These headers measure the quantity of oil going to the bearing. The controlling device consists of small double-end plunger valves held in place by light spring pressure. An air bell is placed immediately above the plunger of each valve and the size of this air bell determines the amount of oil for the bearing.

As pressure is built up against the plunger valve, it is unseated from its normal position and seats itself in the opposite direction, preventing any flow of oil to the bearing. As the pressure increases, the air in the air bell is compressed by the liquid which flows in.

Immediately the pressure is reduced by allowing the main pump to return to its normal position, the plunger valve reseats itself in its normal position and the oil that has entered the air bell is forced out and to the bearing by the air pressure in the air bell.



# Four New Types of Radio Receivers Announced

## R. C. A. Also Adds New Tubes

FOUR new types of radio receiving sets, three new types of loud speakers, and two types of current supply devices were formally announced by the Radio Corporation of America at a recent dinner and demonstration to the trade press at the Hotel Commodore, New York City. A series of five new types of vacuum tubes, supplementing but not replacing previous types, and the adoption of standard bases for the complete line of tubes, were previously announced.

Foremost among the new model sets is Radiola 30, embodying the new R. C. A. eight-tube superheterodyne, Radiola loud speaker Model 100 of the cone type, the whole capable of operation direct from the 110-volt alternating current house lighting mains. The battery eliminating devices employ the new Rectrons, which are vacuum tube rectifiers able to convert lighting current into the required "A," "B," and "C," voltages. No antenna is required with this model. It retails for \$575, complete.

Radiola 28, a desk model, is an 8-tube superheterodyne, dry-battery operated, which can be used with the ordinary loud speaker or in conjunction with the new combination power amplifier-rectifier-loud speaker. It lists at \$260, less batteries and speaker.

Radiola 25 is a second harmonic, six-tube superheterodyne which can be used with any of the R. C. A. or other loud speakers. It sells for \$165 with Radiotrons but without batteries.

Radiola 20 is a new type of five-tube, balanced radio frequency receiver which differs from the conventional in that it employs regeneration. It sells for \$102.50, without vacuum tubes.

Radiola loud speaker 104 has built-in amplifiers and rectifier tubes in conjunction with cone speaker. It is capable of tremendous volume and pure tonal quality. It sells for \$245, with all necessary vacuum tubes.

Radiola loud speaker Model 102 is supplied with a rectifier-amplifier unit by means of which it can be operated direct from the lightning mains, drawing therefrom grid, plate and filament voltages. It is of the cone type. The retail price with vacuum tubes is \$140.

Model 100 loud speaker is a cone type speaker selling for \$35.

The new rectifier units, R. C. A. Uni-Rectron Model AP-935 and R. C. A. Dup-Rectron Model AP-937 supply "B" battery current from the lightning mains. The former includes also a stage of power amplification. Either can be attached to prevailing types of receiving

sets. They sell for \$105 and \$65 respectively.

## Vesta Radio "A" Battery

THE Vesta Battery Corporation, Chicago, announces that its low priced competition line of Vaco Batteries will be supplied as "A" Radio batteries at regular prices.

This provides Vesta dealers with four lines of "A" Radio batteries, consisting of the "De Luxe", "EAU," Standard and Vaco.

The "De Luxe" is furnished only in the 100 ampere hour size, but the other lines are supplied in various capacities.

There are also complete lines of Vesta



Vesta "A" battery

"B" Radio Batteries, and the Vesta Chemical Charger, for charging "B" batteries.

The revised edition of Vesta Bulletin 102, illustrating and describing these lines, and giving interesting battery information, will be gladly supplied to interested dealers.

## Good Show in Los Angeles

LOS ANGELES.—The third annual National Radio Exposition, which opened in Los Angeles September 5th and continued until September 12th, was by all odds the largest and most successful show of its kind ever held in Southern California. A total of 175 exhibitors engaged every available display space in the large auditorium on the grounds of the Ambassador Hotel where the exposition was held. Every known type of radio was on display from the small tube instrument little bigger than a matchbox, to a huge multi-tube set capable of picking up programs from any point in the civilized world. There were machines that send photographs by radio, others clicking off printed matter like a typewriter without a human hand touching, and all controlled by wireless.

There was a radio set to please everyone, and from prices varying from less than a dollar to more than \$1,000. A

complete broadcasting station enclosed in glass provided by the Radio Corporation of America, was in constant communication with an airplane that soared a thousand feet over the auditorium every afternoon.

Radio jobbers, distributors and dealers are enthused over the prospects for radio equipment in the Southern California market this year. At a preview meeting held just before the show was opened to the public, it was generally agreed among the representatives of all branches of the radio business that this market will yield unusually well this season.

Waldo T. Tupper was managing director of the exposition. J. A. Hartley was chairman of the finance committee; C. A. Stone, chairman of the arrangements committee, and J. W. Boothe, chairman of the publicity committee. Serving on the various committees were L. E. Taufenback, W. D. Scott, Lombard J. Smith, R. B. Yale, H. C. Braden, F. D. Hutchinson, H. W. Mason, C. H. Mansfield, Al Meyer and C. F. Hall.

## Radio Operates Cars

RADIO automobiles operated by remote control short-length waves will be a feature attraction at the Wisconsin Radio Exposition to be held in Milwaukee, Nov. 11 to 15, inclusive. Maurice Francill of New York will operate a driverless automobile through downtown Milwaukee, making it conform to all traffic regulations. Later during the exposition he will operate two cars in the same manner and on the closing day will make four cars race each other, hold hill climbing contests, cut each other into curbs and perform other stunts. Seventy-five per cent of available booth space at the exposition has already been taken by exhibitors.

## Dealers Meet in Alabama

DEALERS in Atwater-Kent Radio sets and parts for the state of Alabama, gathered at Birmingham on Aug. 26 for their first annual convention. The meeting was held at the Birmingham Electric Battery Co., state distributors, and Ed Henley, president of the company, presided over the meeting.

The dealers gathered promptly at nine o'clock to hear the merchandising plan of their company for the coming radio season and President Henley opened the meeting with a short speech of welcome. Julian Schwartz, automobile editor of the Birmingham News followed with an interesting talk on newspaper advertising.



# Automotive Leaders Praise Trade Press

*A. L. Reeves, M. L. Heminway and A. H. Bartsch Among Speakers Who Predict Continued Progress of the Industry—C. A. Musselman Tells of Benefits of Publishing Merger*

AT the annual sales conference of the Chilton Class Journal Company, held in Philadelphia at the publishing headquarters during the past week, which was attended by all of its advertising salesmen from various parts of the country, a great deal of emphasis was given a key-note slogan "Know your stuff," which emanated from A. H. Bartsch, general sales manager of the American Bosch Magneto Corp., Springfield, Mass.

Mr. Bartsch was one of the speakers at the conference and also at the banquet held at the Union League on Friday evening as were Alfred Reeves, general manager of the National Automobile Chamber of Commerce and M. L. Heminway, general manager of the Motor and Accessory Manufacturers Association.

Mr. Bartsch stated that a new note has been sounded in the merchandising of automotive products; that during an era, now passed into history, the salesman who had a good fund of funny stories, "personality," and an acquaintance in the trade could get along pretty well—or at least in many cases did get along pretty well.

But today the salesman who tries to get by without a specific knowledge of his merchandise, a definite knowledge of his competitive market, and a thorough conception of the customer's needs, is a failure—both to himself and the company he represents.

## Superficial Salesman Passing

Mr. Bartsch made it quite plain that the superficial salesman is rapidly passing from this industry and trade. He said that another negative brand, the man who is forever discussing reasons why "it can't be done," is also speeding toward the exit turnstiles.

"The salesman of today and of tomorrow," he said, "is the man who, when he enters your office has something really constructive to say—and says it. Such men are welcomed by the executive who sits in the buyer's chair. The inefficient salesman who, perforce, receives scant consideration at the hands of such a buyer may tell you that the buyer is hard boiled and crusty. Well, he has got to be when empty handed salesmen attempt to monopolize his productive time."

C. A. Musselman, president of the Chilton Class Journal Company, upon opening the conference, addressed the salesmen upon general subjects relating to policy, etc. Among other things he said:

"Now, for the first time since the

merger of the Chilton and Class Journal companies we find our reorganization practically completed and the decks cleared for action. This merger has been as beneficial to the industry as it has been to us.

"Our internal problems have been minimized and should find us turning outward toward sales possibilities instead of inward toward problems of administration.

"This meeting is the first under the new order, and I hope the knowledge of our present ability to go forward will be as inspiring to you men in the field as it is to us who have been making plans for this turn of the tide.

"There have been many changes, some of a radical nature, since the two publishing interests came together, but I believe the rank and file of the organization are fully convinced that these changes were not only necessary but inevitable.

"It is true that an individual or a corporation cannot go forward if it remains in a rut. Ruts create resistance and when riding in them the slower ones ahead cannot be passed. Let us all take heart in an appreciation of the fact that we are out of the rut.

"Great changes have occurred in the manufacturing and merchandising of automobiles and automotive products. Comparable changes have been made, and are being made, in the publishing service

we are rendering the automotive manufacturers.

"You men who represent us in the various territories must be constantly mindful of the new order of things. Your contact with our clients and prospective clients, must be on the basis of serving those contacts faithfully, honestly and well with a group of papers which specifically function to specific needs—whether those needs be manufacturing, wholesaling or retailing the products of the greatest and most interesting of any industry the world has ever known."

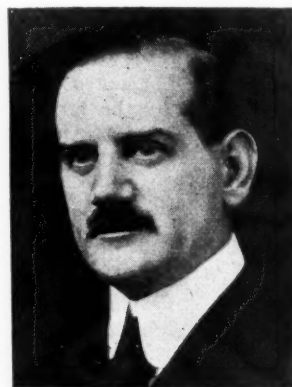
At the conclusion of the convention, on Saturday at noon, Mr. Musselman stated:

"A company with ample finances, with the leading publications, and the right men directing it, such as we find on the United Publishers Corporation board of directors, is one so well entrenched that it is unassailable so long as the manpower is of the quality we have in this organization.

"You on the firing line are more fortunate than many men I know of on other sales staffs, because you have as your sales director a man who understands selling, a man who understands human feelings, a man who is tolerant and helpful, and can lead by example.

"Therefore, I know of nothing more fitting than to give a rising vote of confidence and also of thanks to Joseph S. Hildreth, who is ever looking after your interests."

## Guests Who Spoke at Chilton Class Journal Sales Convention



From left to right: M. L. Heminway, General Manager, Motor & Accessory Manufacturers' Association; Alfred Reeves, General Manager, National Automobile Chamber of Commerce; A. H. Bartsch, General Sales Manager, American Bosch Magneto Corporation, Springfield, Mass.

# At Chilton Class Journal Sales Meeting



*Group of those attending Chilton Class Journal sales convention*

At the conclusion of his welcome to the staff Mr. Musselman turned the conduct of the sessions over to Mr. Hildreth, vice-president and sales director.

Alfred Reeves, New York, general manager of the National Automobile Chamber of Commerce in his address said:

"Do not let any one minimize the importance of trade papers in the automotive industry. This has been a big, fast-moving and fast-growing industry, but it has been guided very largely by the trade papers.

"The surveys which you have made in the past have been very helpful. Information is valuable, and the kind we can always depend upon getting from you is especially valuable to those executives throughout the industry who are looking ahead and planning for the future.

"You men in the advertising end of this business are big factors in the industry. Carrying news of high value to the industry the trade paper is of great service and I do not know of any industry in the country where they have been of greater service than in the automotive field.

"It is axiomatic that where you find good trade papers you also find a good, successful, co-operative industry. We want good, independent, thinking papers which will not hesitate to constructively criticize and to comment on the evils of the industry. I am opposed to 'association organs'.

## *Two Things for Dealers to Do*

"There are two things a successful automotive dealer must do: first, read his daily newspaper every day, and, second, read a good trade paper regularly.

"There is room for improvement in automobile advertising. In the class of certain advertising that has come out within the last thirty days you could take one firm name out of a piece of copy, put in another name—and the argument would apply with equal force in either case.

"We have a great big field because the motor car is an article of universal desire. It is going to increase in numbers and in use. We are making thirty-one

miles of automobiles every working day of the year.

"Bankers tell me that the automobile business has been the most wonderfully conducted of any business in this country, especially during the first six months of this year. A good measure of credit for this desirable condition of affairs belongs to the trade papers. During this period the dealer made money, the industry made money, there were no price cuts, and no new model announcements until after the first of July, which is as it should be.

"Automobile financing is the best of any being done in this country. Sixty-five per cent of all cars manufactured are sold on time, but the loss to the finance companies is less than two-fifths of one per cent.

## *Three Normal Problems*

"The automobile industry has three normal problems: Engineering, that is taken care of; production, which has been mastered, and, third, sales, advertising and distribution.

"In this third problem you, and the publications you represent, can continue to be highly helpful.

"I want to congratulate you on your magnificent plant and your organization. A big organization has advantages which a small one can never have. Hence your advantages are big.

"If you are going to get results you must have team work. Many times you, as individuals, are obliged to do things you would rather not do, but those things are necessary parts of successful team work. Keep up the Chilton Class Journal team work."

The next speaker was General Manager M. L. Heminway of the Motor and Accessory Manufacturers Association, who evidenced a considerable degree of optimism for the future of the industry and, like Mr. Reeves, stressed the important part taken by the principal trade papers in making this the greatest and fastest moving industry of all time.

William M. Webster, commissioner of the Automotive Equipment Association, was scheduled to speak but could not be present owing to a death in his family.

Speakers at the banquet, in addition to

Messrs. Reeves, Heminway, Musselman and Hildreth, were Charles G. Phillips, New York, president, and A. C. Pearson, New York, vice-president of the United Publishers Corporation, of which the Chilton Class Journal Company is a component part.

Mr. Phillips spoke on the subject of "Empty Hands" and laid particular stress upon the mental and other equipment necessary for the present day advertising salesman if he is to be successful.

Mr. Pearson outlined to his nearly one hundred auditors the incomparable advantages they possess in having access to the industrial and merchandising laboratories of the United Publishers Corporation in obtaining authoritative market analyses and trade surveys, not only automotive but those which deal with other United Publishers Corporation units, including iron and steel, hardware, textiles, shoes, leather, etc. He pointed out that these broad research facilities are available to any Chilton Class Journal Company client who can use them.

## *Position of U. P. C.*

He further stated that the U. P. C. is the largest business paper publishing company in the world, and that in the publishing of its periodicals the printing was done upon paper made in the U. P. C. paper mills, from wood grown in the corporation's forests, that the company owns its own engraving and printing plants and, except for the printing inks used, is entirely independent of outside sources of supply.

During the sessions of the sales conference various of the Chilton Class Journal executives and department heads furnished convincing evidence that the automotive industry and trade are in better condition today than ever before, that 1926 will prove bigger than the current year, and that the Chilton Class Journal publications are in stronger position than at any time in automotive history to render both industry and trade an improved editorial service, with circulation distributions virtually blanketing the fields covered.



# The READERS' CLEARING HOUSE

Questions and Answers on Dealers' Problems  
**BUILDING - ELECTRICAL - FLAT RATES**  
**SHOP - LEGAL - PAINT & TRIM - ACCOUNTING**

## Schebler Model S Adjustments

Q. We have a new model S Schebler carburetor on a Reo six which has been run 14,900 miles. We cannot get this to run right at low speeds. The car will not run evenly much under 10 miles per hour, but at other speeds it is all right. It pulls better on a slight grade. The car has new plugs and had valves ground. J. E. Worster, Old Point Garage, Madison, Maine.

According to our specification tables the latest Reo car is shown as having a Schebler carburetor, but in the Reo instruction book the Rayfield carburetor is shown. In accordance with your request, however, we are showing an illustration of the Schebler carburetor and also giving instructions for making adjustments which are as follows:

**Idle Adjustment.**—Turning the idle adjusting screw (A) to the right (clockwise) gives a lean mixture. Turning it to the left (counter clockwise) gives a richened mixture. This adjustment is not sensitive and can be turned from three to ten notches without seriously affecting the idle.

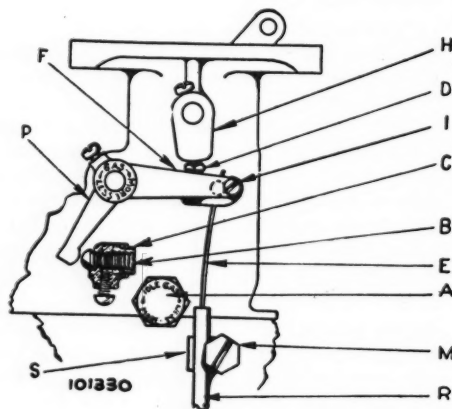
The idle adjustment should be set so that by depressing the air valve slightly (about 1/32 to 1/16 of an inch) the engine will start to cut out, showing that the idling mixture is about right. If the mixture is too lean the engine will stop when the air valve is depressed slightly. If the mixture is too rich the engine will speed up slightly on depressing the air valve and the air valve will have to be depressed considerably before the engine cuts out.

**Important.**—If the idle adjustment is turned to the right (clockwise) too far, the air valve will not seat, since the needle is shut off too far. Turn to the left or (counter clockwise) until air valve seats and adjust as explained above.

**Range Adjustment.**—This adjustment is only effective in the driving range at speeds from 20 to 40 miles an hour and does not affect acceleration or hill climbing. This adjustment as shipped from the factory will usually be found to be the best unless it is necessary to give a lean or richened mixture at speeds from 20 to 40 miles an hour. Turning the range adjusting screw (B) to the left (counter-clockwise) gives the driving range a lean mixture. Turning it to the right (clockwise) so that more of the threads of the screw (B) are exposed gives the driving range a richened mixture. To obtain the original setting as shipped from the factory, set the head of the range adjustment screw (B) flush with the range adjustment bushing (C). If

the range adjustment is changed it is necessary to readjust the idle mixture.

**High Speed Adjustment.**—This adjustment as shipped from the factory ordinarily need not be changed. This adjustment is not sensitive to one turn in either direction and is effective only at wide open throttle running. In changing this adjustment try it on a hill after each change for best results. In extreme cases it may be necessary to fur-



Reo Six carburetor adjustments

nish a leaner or richer mixture for wide open throttle position. The adjusting cam tappet screw (D) is turned to the left (counter clockwise) to give a richened mixture and turned to the right (clockwise) to give a leaner mixture.

To obtain the original setting as shipped from the factory, the head of the range screw (B) should be flush with the range adjustment bushing (C). With throttle wide open adjust the cam tappet screw (D) until there is about 7/32 to 1/4 of an inch space between the dash control lever (P) and the end of the range screw (B).

## FIRST ESSEX TO USE TIMING CHAIN

Q.—What was the serial number of the last Essex four-cylinder car which used timing gears or what was the serial number of the first car which used chain drive at the front end.—Russel W. Moore, 908 E. Marshall Street, Paris, Ill.

The first Essex four cylinder cars which had chain drive at the front end were as follows:

Phaeton .....	620945
Cabriolet .....	842961
Coach .....	512041
Chassis .....	900048

All cars previous to these numbers were equipped with metallic gear front end drive. This information is furnished through the courtesy of the Hudson Motor Car Company.

## When a Car Bucks—What to Do?

Q.—We have a Ford coupe that bucks between 15 and 20 miles per hour, this being a 1925 model. The car ran perfectly for the first 2½ months and began bucking, at which time we began to look for trouble. First operation included reseating and grinding valves, testing intake manifold for leaks with gasoline, replacing new timer wire, timer and roller, inspection of coil box connections and porcelain and plugs, also adjusted valve stem clearance to .008 inches, with no better results. The second operation included refitting pistons and rings after which we had 50 lbs. compression in each cylinder under the compression gage. Also tightened rear hubs on axle shafts, replaced universal joint with new one and inspected transmission which seemed to be o. k. Have adjusted commutator pull rod to right position. Car runs fine for about 75 to 200 yards then the bucking starts and continues until car is speeded up. George N. Smith, Meridian, Texas.

We would recommend your testing to see whether the spark misses or not before you do any more work. Disconnect one spark plug wire at a time and with the engine running at a speed corresponding to the speed at which the trouble occurs, check the spark. The end of the high tension wire should be held about 3/16 inch from the cylinder block and the spark should jump regularly. We suspect that a coil is giving trouble and while you mention checking the coil connections you do not say that you tried a new set of coils.

Even if the spark is o. k. it is possible that the plugs are bad and we would recommend your using a set of plugs from a car which is operating all right. Another possibility is that the carburetor is adjusted to give too rich a mixture or that the float is not operating properly and occasionally permits flooding which would give too rich a mixture and cause the engine to gallop. You might try a new carburetor as this would be a simple test to make.

## WHICH WAY DOES A BELT GO ON THE PULLEY?

Q.—Which way should a leather belt be applied to pulley, smooth side of belt or rough side to pulley? Petterborg-Nash Motor Co., Preston, Idaho.

The hair or grain side should be against the pulley. One side is as good as the other as far as friction is concerned. The strength of the belt, however, comes from the inner or flesh side of the hide. As the belt goes around the pulley the outer portion is stretched and carries the greatest amount of the driving strain, consequently, this outer portion should be the flesh or rough side.



# Planning Your New Building

By TOM WILDER



## A Storage Garage With Ample Aisle Space

Q.—I am planning on building a one-story garage 60 ft. x 150 ft. and would be pleased to have you offer some ideas and plans regarding same. C. O. Roberts, Main Street Filling Station, Wellsboro, Pa.

We judge from your letter that you want a purely storage garage, but as most garages of this sort handle a few accessories, we have arranged for a show window, show case, small office and accessory stock room. This building will be a little wider than absolutely necessary, but we consider this a very good fault as it gives you a wider aisle and makes it much easier to handle the long cars with their bumpers, etc. The wide aisle space will also make it possible to store trucks, if business of this sort is available in your vicinity. This building should have a trussed roof, the trusses spaced about as indicated, and they may be either of wood or steel the wood getting as favorable an insurance rate as the steel.

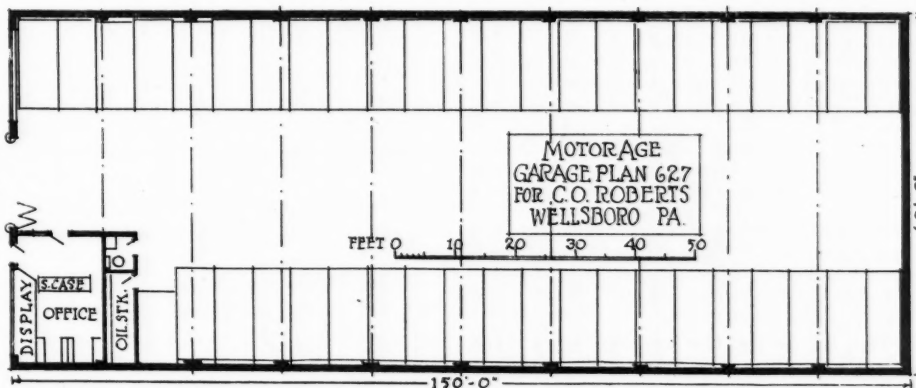
It would be well to make your front entrance wide enough to permit traffic both ways, but of course, this is not absolutely necessary. The heating plant for a building of this kind is usually installed in a small basement arranged in one corner of the building. Some communities require an outside entrance to this basement and if this is necessary where you are, the entrance would have to be from the alley if there is one or from the street in front.

Steam is usually preferred as a heating medium as it is cheaper to install and quicker of action than hot water and gives a better distribution than hot air unless some sort of blower system is used.

### REDUCE THE OUTPUT TO MAKE GENERATOR RUN COOLER

Q.—We have a Wagner generator, model E M 155 on a 1918 Saxon, model S-4-T. This generator charges 18 amperes and seems to be all right except that it overheats. New brushes have been fitted and the commutator turned down, but it gets so hot you can hardly bear your hand on it. It is correctly wired according to an automobile hand-book. Should the cutout be grounded? There is no sparking at the brushes and all wires are in good shape. It has me stuck. C. A. Harrington, 10 Brookside Park, Milton, Mass.

We believe that 18 amperes is too much output for a machine of this size. Twelve amperes would be sufficient in summer and 15 in winter. The cutout should be grounded and if it is not grounded the generator will not cut in and will not charge the battery by itself and will only charge if the cutout points are closed by hand. Accordingly if the cutout operates all right you know that it must be grounded. We do not believe there is anything wrong with the machine and that the heating is nearly normal for this much current output.



*It would be advisable to have some skylight here even if the building is not surrounded and can have plenty of side windows; the aisle would be dark without them*

## LEGAL QUESTIONS ANSWERED

By WELLINGTON GUSTIN  
of the Chicago Bar

Q.—Last May I contracted with an advertising company to furnish me "One single column cut series D cartoon and reading matter weekly for one year" in advertising my automobile repairing and radiator business. It also states that the contract cannot be cancelled without written consent of the company. Now the contract does not define or describe the Series D line, the only description I have of it is the solicitor's description and the samples he showed me. The cuts they are sending me are not living up to the description he gave me nor as good as the samples he showed me. Also the reading matter half the time cannot be used at all, branching off into other lines such as fixing sewers and guttering roofs. I have refused to accept the cuts at the postoffice and refused to pay for them on the assumption that a contract that does not bind them to live up to their agreement does not bind me to live up to mine. Can I do this or do I have to pay for anything they care to send? Pedersen's Garage, Cozad, Neb.

Regarding your contract for advertising. You are correct in the assumption that a contract which is not binding upon both parties is not enforceable in law. This kind of contract is not binding because of its very quality of lacking "mutuality" as termed in law. While you are right on this rule of contracts you may be wrong in your conclusions. If you have contracted for delivery of a certain thing, you should consider whether you are getting what you bargained for. It is a rule of contracts that where an agreement is reduced to writing the written agreement supersedes all preliminary statements and offers and is presumed to more definitely state just what the agreement is.

But the contract may not embody all the terms of the contract and oral testimony may be resorted to in order to determine just what has been left out of the written part. For instance, where the

description of a service sold is left out of the written agreement, I am of the opinion that your court would permit oral evidence as to what representations were made as to the kind of service, etc. Now the rule is that where goods are sold by sample and the goods delivered are not in accordance with sample, the buyer may return the goods and bring suit to recover money paid, or he may keep and use the goods and sue for the difference in value of the inferior goods to the sample. The statement that contract cannot be cancelled without written consent of the company means little in law. The rule is no party has a right to cancel a contract unless under a provision of the contract giving that right. The provision may indicate that the other party will not agree to a cancellation without suit. So, if by negotiations you are told you may cancel the agreement you should get the consent in writing, then you will have complied with the provision. Of course you are not required to pay for anything a seller cares to send and which is not in accordance with the contract of sale.

### AN ELECTRICAL MYSTERY

Q.—I put on a new timer and roller on a Ford car but it would fire on two cylinders at the same time. Turning the engine by hand it would fire on three and four and then turning it farther it would fire on one and two. A new timer shell and new wires and tested coils were used but it worked the same way. After about an hour I found out the trouble and I wonder if there are any Motor Age readers who could guess what it was. C. E. Loring, Loring Garage, Riverdale, Kansas.

Mr. Loring told us the answer to the above mystery. We are going to see if any Motor Age readers can tell us what caused the engine to act this way.



# Defeating Old Man Wear and Tear

## Curing Oil Leak at Rear Main

Q.—Referring to your instructions, relative to stopping oil leak through the rear main bearings, 1924 Hupmobile 4. I wish to inform you that we got ahold of one of these cars last week and that we followed your instructions. To date the car has been driven a few hundred miles and the leak has increased. Also the oil pressure is recording on dash gage much lower, in fact, after car is warmed up and at from 25 to 30 miles per hour, it records only from five to seven pounds pressure. Will you please see if you can investigate this case further and get me some additional information on this trouble. D. S. Milne Garage, Fairmont, Minn.

The following instructions have been supplied through the courtesy of the manufacturers of the car, the Hupp Motor Car Corporation, Detroit, Michigan. The bulletin covering the repair of the oil leak is as follows:

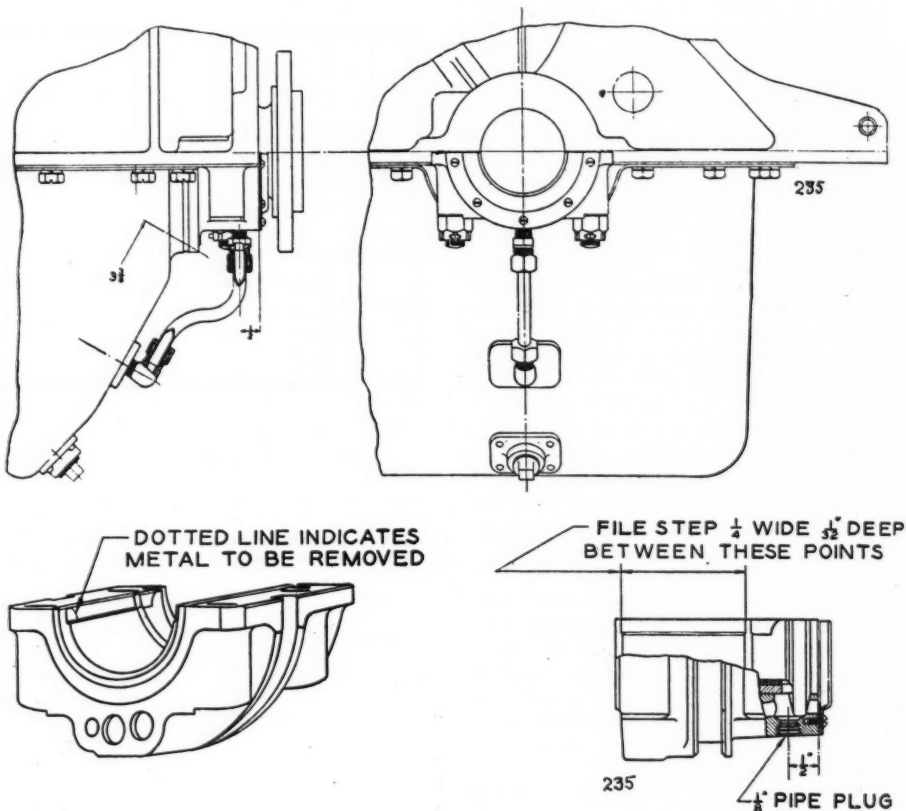
"Certain conditions cause rear main bearing oil leaks and in most cases they can be corrected by chamfering the top edges of the lower bearing as shown at the lower left sketch of illustration No. 235. Aggravated cases sometimes require a tube installation to return surplus oil to the oil pan. Follow the chamfering instructions first.

"To chamfer bearing remove rear main bearing cap and file the babbitt along the upper end of the bearing from the circular oil groove to the inner end of the bearing which is nearest to the crankshaft counterweights. Do not file beyond the oil groove. Be sure that the oil retainer plate screws are tight and that the plate seats firmly at all points along the gasket; also be sure that the plate does not touch crankshaft.

### Amount of Clearance Required

"One sixty-fourth of an inch clearance is required at all points between crankshaft and plate. If this cannot be obtained by shifting the position of the plate it may be necessary to use a half round file on plate to obtain this clearance. The main bearing shims should not touch the crankshaft in rear of the oil fling and must have 1/16 inch clearance at this point. If necessary cut ends of shims with snips. While bearing is removed install a 1/8 inch pipe plug for the purpose of tube installation should this become necessary. Drill a 1/8 inch guide hole in the center and at the bottom of bearing cap oil trap 1/2 inch from the rear end of cap casting as shown at the lower right hand sketch of illustration No. 235. Follow this by drilling 11/23 inch hole. Operate drill from outside of cap—tap and install a 1/8 inch pipe plug securely.

"Remove the necessary shims from rear main bearings until a drag can be felt on



Chamfering the bearing and installation of drain pipe will carry excess oil back to the crankcase

the crankshaft when bearing nuts are tight. Use gasket glue or shellac along top and side surfaces of bearing cap when assembling.

"On engines from No. R-100,000 to R-100,019 always renew the new cork inserts on each side of rear main bearing shim. Install oil pan and check engine for leak. If above procedure does not correct the trouble remove oil and procedure with the following instructions.

"Clean back end of oil pan thoroughly and drill a 1/8 inch hole in the center of pan, 3 3/8 inches from bottom of oil pan packing surface. Make up a brass plate 1/4 inch thick by 1 1/4 inches square. Drill a 1/8 inch hole in center of plate and solder same to oil pan securely, lining up the two 1/8 inch holes. Using the 1/8 inch hole as a guide drill plate and pan with 1 1/2 inch drill and tap hole with 1/8 inch pipe tap. Then install a 1/8 inch tubing elbow. Now remove 1/8 inch plug from bearing cap and install 1/8 inch tube coupling. Install oil pan. Cut a piece of 5/16 inch tubing 3 3/4 inches long and install a union nut and sleeve at each end connecting the two with bearing cap and oil pan elbow as shown in the two upper sketches of illustration No. 235. Be sure

that tube enters coupling in elbow 1/4 inch and that union nuts are drawn up securely. The parts required are one length of 5/8 copper tubing 3 3/4 inches long, one brass plate 1/4 inch thick and 1 1/4 inch square. One No. 45400 pipe coupling, two No. 45402 sleeves, two No. 45403 union nuts, one No. 45404 union elbow.

### READER'S VIEWS ON CAUSE OF SHIMMY

From time to time I see readers asking the cause and cure for shimmy in front wheels, and your answers do not satisfy me. From my observations in over sixteen years at this work shimming at low speed is always caused by excessive tilt in the front axle. If bushings and pins are stiff and steering gear absolutely tight, it is possible to prevent shimmy even if the tendency is there. In many light cars it is common to see the tilt of spindle bolts up to and over one-half inch. The cure is to reduce the tilt to not over one eighth inch. This will also cure the tendency to pull hard to the low side of the road. On the small Overland lengthen the radius spring under the front axle. Phil Churchill, proprietor North Bend Garage, North Bend, Wash.



# Clearing Up Electrical Trouble

EDITED BY A. H. PACKER



## Too Many Secondaries Spoil the Sparks

Q.—We have a 1912 Stevens Duryea engine No. 509 from which the Connecticut battery system has been removed. We have a Bosch model V. D. switch with which we are using a Ford coil, not having the Bosch coil. Wiring it according to the enclosed diagram which is the original Bosch diagram we could get no results, at all, simply because we had a continuous flow of current in the primary winding of the magneto.

Again with the magneto points closed, we get a spark from the Ford coil, but this is impractical because the spark occurs on the compression stroke. We are under the impression that the Bosch V. D. coil is a low tension coil and have accordingly shorted the Ford coil secondary. It is our opinion that we have overlooked something and wish you would show us what that something is. F. L. Tighe, Central Auto-Electric Company, 2639 Harlen avenue, Baltimore, Md.

We are not going to try to straighten out your wiring diagram, but we wish to point out the way battery current can be used to strengthen a magneto spark at low speed and some of the pit falls that are encountered when an installation of this sort is attempted. The illustration shows the circuits of a high tension magneto as well as a coil shown connected at the right. When the magneto is operating normally it generates currents in its own primary winding, due to the rotation of the armature in the field of the permanent magnets.

### Armature Magnetism Changed

The flow of current generated in this primary winding of the armature is through the interrupter contacts to ground and back to the primary. When the interrupter contacts open, the primary current is suddenly interrupted and there is produced a sudden change in magnetism in the armature of the magneto. This change in magnetism is more sudden than could possibly be produced merely by the rotation of the armature. For this reason the secondary winding which is also on the armature has a voltage generated in it which is much higher than could otherwise be obtained. The condenser in the armature which absorbs the arc at the interrupter points makes the stopping of the primary current still more sudden and thereby helps to raise the secondary voltage.

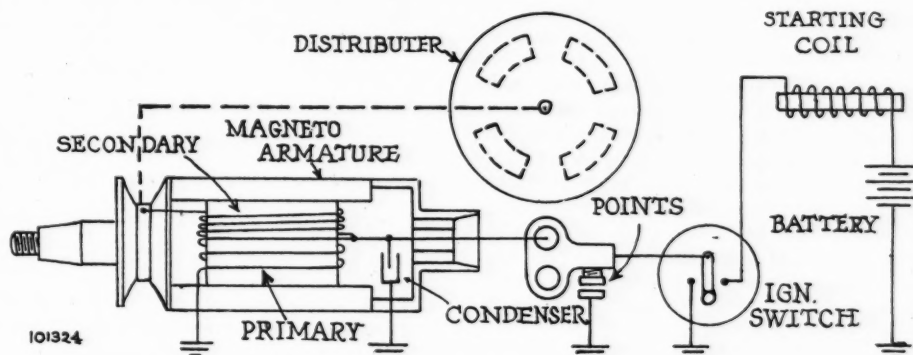
When the armature is rotating at very low speed the secondary voltage is correspondingly low and in some cases may not be enough to give a good spark at the plugs. Our recommendation from a practical standpoint is to have the magneto put in A-1 condition and then if the spark is insufficient to have an impulse coupling installed. It is possible, however, to get a hot spark at low speeds by using a battery and an extra coil. As the

magneto already has its secondary winding connected to the distributor it is not feasible to use a Ford coil as you tried to do and if you short the secondary winding it has an effect on the primary which to a great extent neutralizes its action.

The coil required is similar to the coil used in a make and break system as used on some stationary engines, being nothing more or less than a coil of wire wound around an iron core, the core usually being made of a bundle of iron

slowly. As soon as the rotation is appreciable, however, we find that there is voltage generated in the primary of the magneto armature which has the effect of strengthening two of the sparks and weakening the others, so that if we tried this scheme we would find that the engine will run on two cylinders and the other two will not fire, so that as illustrated, the scheme is hardly practicable.

To overcome this difficulty the Duplex magneto was made at one time by one or two concerns. This magneto was similar



Experimental circuits for obtaining a stronger magneto spark at low speed

wire. Such a coil is shown connected with battery, switch and magneto armature in the illustration previously mentioned. With the switch in the middle position the magneto operates as a straight high tension machine. With the switch at the left the magneto is shorted so that this would be the stopping position. With the switch at the right we have a circuit from the battery to the starting coil and through the interrupter points or the primary to ground.

When the interrupter points are closed you will notice that they short out the primary winding, so that the battery current would not flow through it. The battery current, however, would flow through the starting coil and would magnetize its core. Then when the magneto is rotated and the interrupter points open there would be a sudden rush of current through the primary winding of the magneto armature due to the magnetic effect of the core of the starting coil. This sudden rush of current through the primary winding would suddenly produce magnetism, which in turn would generate a voltage in the secondary winding.

The difference between this condition and the one previously described is that the magnetism suddenly rises instead of suddenly dying away. A circuit of this kind will work with the ordinary high tension magneto when it is rotating very

to a straight high tension magneto except that the interrupter cover had two semi-circular brass pieces or segments on the inside, these segments operating as a two part commutator. The interrupter carried two brushes which rubbed on these segments and the effect of the whole construction was to reverse the relative connection of battery and magneto armature at each half revolution. This had the effect of making all four or six sparks as the case might be, stronger, and at the same time reduce the tendency to weaken the magnetism of the magneto magnets. Any authorized electrical service station can tell you the approximate expense of installing one of the Duplex type interrupters and getting a suitable coil.

### Impulse Coupling Preferable

On the other hand they can quote you on an impulse coupling to remedy the trouble you are experiencing. Referring again to the electrical problem, wish to point out that it is impossible to merely connect a battery to the magneto without using a coil of some sort or the interrupter contacts would constitute a short circuit and burn out the wiring and points. On the other hand a coil with a secondary winding cannot be used with a straight high tension magneto, although it can be used with a Dual magneto.





# Motor Age's Flat Rate Forum

EDITED BY B. M. IKERT

## Flat Rate Means More Than Merely Adopting Fixed Prices

JUST because a shop may have a flat price for every operation it is likely to perform this does not mean no trouble ever will be encountered. There will be snags at times as with everything else. If such were not the case we should never need executives and managers for all other lines of business.

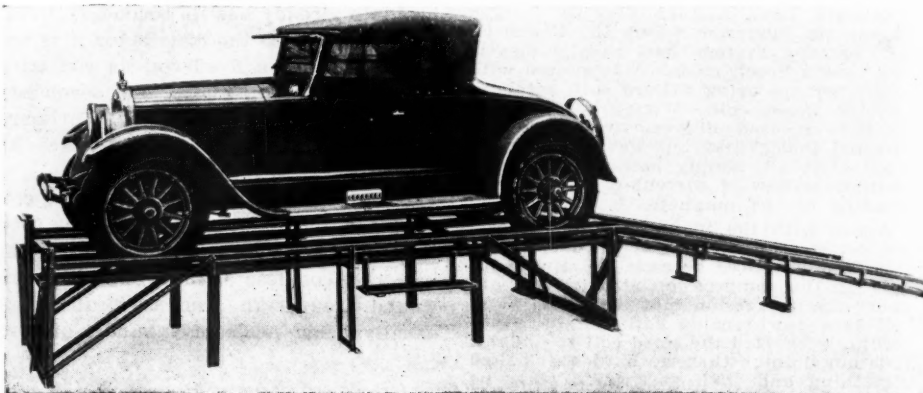
In using flat rates there must be a constant striving to make the system better. It is possible very often to perform some operations more quickly than the time limit set up for the job and on which the price to the customer is based. The live shop is always on its toes to develop new methods and equipment to cut down the time factor.

Putting the men on a piece work basis (providing the shop is large enough to handle a volume of work warranting it) produces an incentive for them to evolve new schemes to do the work more quickly and at the same time not sacrifice quality.

When you install a flat rate system you have just started to work. As time goes on you will be able to adjust prices and time schedules to suit your conditions more adequately.

### Maybe the Flat Rate Manual Would Tell?

The other day a car owner found it necessary to take his car to a "garage"



### THINGS THAT HELP FLAT RATE

*Being able to get at the job is half the battle and when it is necessary to get underneath the car a raised platform or runway, as shown above, helps very materially. It gives the mechanics a chance to work in comfort and under such conditions they are bound to do a better job*

for repairs and was told he must buy a new rear axle housing, a bearing and several other parts. He had run the car and in some manner the pinion shaft housing broke away from the differential housing. Naturally quite a bit of damage was done. Also, the repairman said a new ring gear and pinion were advisable. While he was about it, the owner

decided to also have the engine put in shape by regrinding the valves and taking up the bearings, installing new clutch disks and several other jobs. He was telling us about the work and we asked him what the job was going to cost. He said, "I don't know, you see they can't tell until they see how much work they have to put in on it."

Looks like flat rate still has to win over some garages and shops.

## MOTOR AGE'S FLAT RATE FORUM

No. 32

### FLAT RATES FOR OAKLAND CLUTCH OPERATIONS

Manufacturer's Official Designation	Time Hrs. Min.
6-1 Clutch Assembly. Removed, refaced, any necessary part except clutch hub change, assembly replaced.....	4
6-2 Clutch assembly. Removed, overhauled complete except leather and clutch hub and assembly replaced.....	3
6-7 Clutch equalizer bolt removed and replaced.....	45
6-8 Clutch equalizer bolt removed and replaced (drilled out).....	30
6-9 Clutch leather trued and fitted after assembly to cone.....	20
6-10 Clutch leather treated with neats foot oil or Fuller's earth.....	30
6-12 Clutch and brake pedal shaft auxiliary bracket. Removed and replaced.....	1
6-13 Clutch pedal shaft freed up.....	30
6-14 Clutch assembly. Remove transmission, change clutch release bearing, retainer and nut and replace transmission.....	2
6-15 Clutch release bearing oil kip removed and replaced and bearings oiled.....	15
6-17 Clutch release springs or support bearing removed and replaced.....	2
6-18 Clutch release springs or support bearing removed and replaced, (transmission down).....	30
6-19 Clutch release bearing oiler tube removed and replaced.....	30
6-20 Clutch assembly. Clutch driven disc or clutch clamping plate removed and replaced, one or all.....	3
6-22 Clutch assembly. Removed, overhauled complete or any part changed and clutch assembly replaced.....	3
6-25 Clutch release fork or shaft removed and replaced (transmission in place).....	3
6-26 Clutch release fork or shaft removed and replaced (transmission down).....	25
6-27 Clutch release shaft operating lever removed and replaced.....	30
6-28 Clutch driving bolt removed and replaced, one only.....	30
6-31 Clutch pedal removed and replaced.....	45
6-32 Clutch pedal adjusted.....	30

Operation 6-1, applies to models 34, 6-44, 34-C and 6-54, incl.  
Operations from 6-2 to 6-17 apply to model 34 to 6-44, incl.  
Operation 6-19 applies to models 34-C to 6-44, incl.  
Operations from 6-20 to 6-28 apply to models 6-54.  
Operations 6-31 and 6-32 apply to all models.

### Flat Rates for Trucks

STATE TRADE SCHOOL.

Vancouver, B. C., Canada.

To the Editor of MOTOR AGE:

If you publish a Flat Rate Manual for motor trucks, we would appreciate it very much if you would forward a copy to us at your earliest convenience.

HAYES-SLUMAN MOTOR CO., LTD.

Excepting for the flat rates operations given in Motor Age's Flat Rate Manual on a few light delivery cars such as Chevrolet and the Reo Speed wagon, we have not as yet brought out a flat rate manual covering the various makes of trucks.

You probably will appreciate the fact that it is much more difficult to make up a list of such operations for trucks, since the work involved is of a different nature than that found in passenger cars. Usually where trucks are operated in fleets it is customary for the owners of the trucks to operate their own maintenance shop and to them flat rate prices or time schedules are not so important.

In the rural sections, however, where a shop often is called upon to work on a farmer's truck, for instance, it probably would be quite an advantage to be able to quote a flat rate price for maintenance work.

# THE MARKET'S NEW OFFERINGS

## Accessories -- Equipment -- Supplies

### Decker Shock Absorber

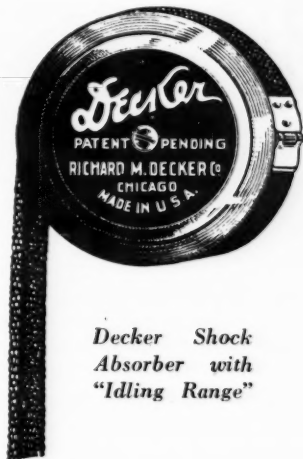
A SHOCK absorber which is said to control spring action of the motor vehicle "only" when necessary and which at the same time responds powerfully and efficiently when called upon by unusual road conditions, is being manufactured by the Richard M. Decker Company, of Chicago. This shock absorber, by reason of its "Idling Range" comes into action only when the riding condition ceases to be normal and up to that point leaves the springs of the car free to function as they should under normal requirements. In other words, it is designed to control excessive spring action. The "Idling Range" remains the same regardless of the load carried, automatically adjusting itself to changing weights. The working parts of the Decker Shock Absorber are enclosed in a heavy metal housing, being thus protected against dirt, water or other elements that tend to destroy efficiency. To service the device it is only necessary to remove the cover. Price for set of four (for all cars except Ford), \$32.50. Price per pair for Ford, \$17.50. Attaching charge extra on all cars.



National Standard Company's New Balloon Tire Jack.

### Standard Auto Jack No. 18

A BALLOON tire jack which the makers say will serve the most extreme conditions is being produced by the National Standard Company, of Niles, Mich. The appliance is designated as Standard Auto Jack No. 18. It can be used under the lowest hung axles with the largest size balloon tires. A telescoping screw eliminates breakage of springs and other working parts. The telescoping feature of the handle permits its use at any length. The height of the jack lowered, is 6 and 7/8 in. The height, raised, is 14 and 15 1/4 in. The capacity is 2,000 lbs. and the weight of the jack is 7 lbs. It is suitable for a car weighing 5,000 lbs. The list price is \$6.50.



Decker Shock Absorber with "Idling Range"

### "Pressure" in Selling Over the Counter

High pressure salesmanship in the accessory store is all right providing the pressure is properly directed. The conception entertained by some of high pressure salesmanship is to coax, din and worry the customer until he is stampeded into buying. That is positively misdirecting the pressure and it is dynamiting future business.

In selling over the counter the sales pressure must be applied in a different manner than in other forms of selling. Yet in the general business system of the store there is ample room for "high pressure"—in the advertising, in the direct-mail campaigns and in other progressive devices for getting business.

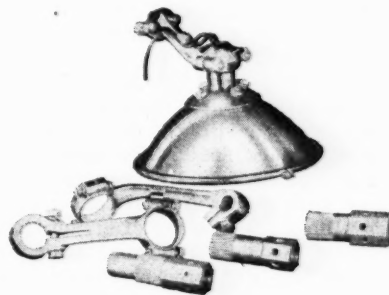
Cultivating the good will of customers is a very profitable form of "pressure" and often the accessory dealer finds that the highest sort of pressure is, in fact—no pressure at all, to use the word more literally.



McCord's Cellular Radiator for Fords

### Kelly Roadlite

THE Kelly Roadlite, manufactured by John B. Kelly, 4617-19 W. Harrison Street, Chicago, is attached to the front wheel spindle and therefore turns with the front wheels, giving full illumination of the road on curves as well as straight ahead. One or two lights may be used, depending upon the amount of illumination desired, for Ford, Chevrolet and Overland installation, but for other cars two lights are required. Two types of brackets and three types of studs are furnished to provide for practically universal application to all makes of cars. The brackets and studs are shown in the illustration. The lamp is made in two sizes, Model No. 1, 6 1/4 in. in diameter, priced at \$5 each or \$8.50 a pair, and model No. 2, 5 1/2 in. in diameter, priced at \$3.50 each or \$5 a pair, at retail. The prices include necessary wire and switch.



Kelly Roadlite

### Cellular Radiators for Fords

COMBINING many advantages in construction and service the McCord Type "B" Cellular (hexagonal) Radiator for Fords, is being manufactured by the McCord Radiator & Manufacturing Co. of Detroit. One feature is its triple-riveted side brackets which are strongly made of spring steel and which protect the radiator by absorbing the road shock and vibration before reaching the center core of the radiator. This feature is said to lengthen the life of the radiator. The radiators are tinned inside and out to afford protection against corrosion through the action of chemical or mineral substances in the water. The top and bottom tanks are constructed of heavy gage brass and it is said they will last the life of the radiator core. The McCord Type B core and shell are interchangeable with the regular Ford product. No. R-123, Type "B" radiator for Fords, complete 1916-23, lists at \$16, No. R-124, Type "B", complete less shell, 1916-23, lists at \$15, No. R-126 Type "B" radiator for Fords, complete, 1924-25, lists at \$17, No. R-126, Type "B" radiator for Fords, complete less shell, 1924-25 lists at \$16.



# GETTING MORE OUT of the SHOP

## Worthington Feather Valve Vertical Air Compressor

Worthington vertical "Feather" valve air compressors were designed to meet the demand for a small machine for use in garages, repair shops and small industrial establishments. They are made in two types: air-cooled and water-cooled. The air-cooled compressor is made in 2½x3 in. and 3½x4 in. sizes and is exceptionally well adapted for tire inflation. The water-cooled type is made in four sizes up to 6½x5 in. and is suited for supplying compressed air for one or more of the following uses: tire inflation; air-blast cleaning; pressure and air-mist car-washing systems; pneumatic jacks, lifts, hoists, drills, hammers and other tools; forced draft for brazing forges, etc.

Automobile-type construction was adapted in designing Worthington vertical compressors so as to obtain the long life, low upkeep and reliable service. Accordingly pressure forced-feed lubrication and accurate balance of reciprocating parts were incorporated.

The "Feather" valves used in these compressors are similar to those used in larger and more costly Worthington compressors. The valve proper consists of a strip of light, ribbon steel which, when closed, covers a slightly smaller slot in the ground face seat. The strip is restrained but not rigidly secured at the ends by a curved drop forged steel guard which allows the passage of air on either side of the strip. Quiet operation and maximum life is insured by the lightness of the valves and by the fact that there is no destructive impact. The valve itself is all but indestructible while the expense of renewals, which are seldom required, is obviously nominal being confined to the replacement of the valve strips.

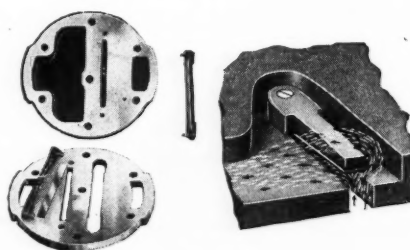
The suction and discharge valves and guards are identical and interchangeable. The openings for these valves are located on the same side of the cylinder. The cylinder head and valves may be removed without breaking pipe connections.

Another feature of the Worthington vertical compressor is forced-feed lubrication of all bearings. The oil is forced through drilled oil passages in the main crank-shaft and delivered to the bearings under pressure.

The piston is ground to size and fitted with three hammered piston rings. Special provision is made to wipe surplus lubricating oil off the walls and return it to the crank case.

The wrist-pin of hardened steel, ground to size, is held in the piston by a spring ring on each end.

The main bearings are of the two-part removable die-cast babbitt type and may be readily adjusted, removed and replaced. The shaft, crank pin and counter weights are drop forged in a single piece. The connecting rod is a drop forging of "I" beam section which gives maximum strength with minimum weight. All re-



Details of the valve used in the Worthington compressor

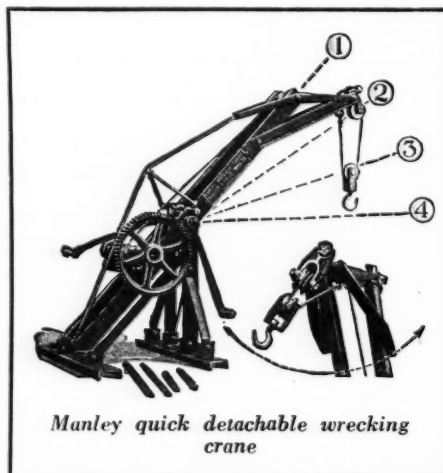
ciprocating parts are heavily counterweighted to reduce vibration and to prevent pounding of the bearings.

## Manley 2 Ton Quick Detachable Wrecking Crane

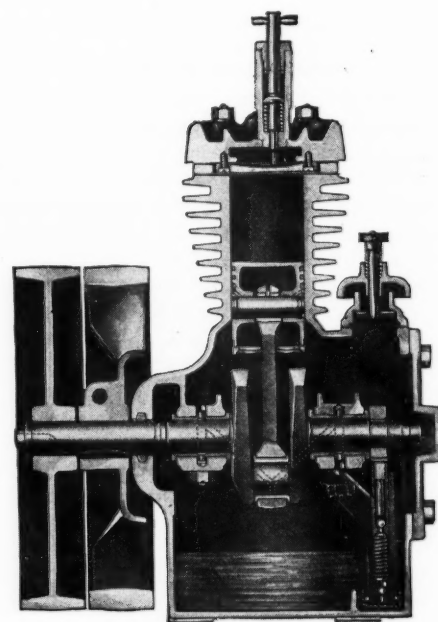
The Manley 2 ton quick detachable wrecking crane is built on exactly the same principle as the combination crane, except that it is designed to be almost instantly detached from the service car by removing two pins. When the rear pin is pulled out it allows the crane to swing back and by removing the king pin in the saddle the crane is free from the car. The hinged saddle folds out of the way on the car platform or may be completely removed by taking out another pin and two bolts. All of this requires about 3 minutes.

The tilting beam on the No. 102 crane is accomplished in the same manner as on the larger crane by changing the length of the links at the rear end, which allows the beam to tilt into any position. It does not interfere in any way with the quick detachable feature. The crane also has a swivel nose permitting a chain to pull on any angle and eliminates the possibility of its running off the sheave pulleys. Two handles are now supplied, enabling two men to operate the winch in case of extreme heavy loads. The price complete with hoist and 24 ft. of chain is \$95 and without hoist and chain, \$65. The swivel nose can also be bought separately for \$8.50.

The crane is made by the Manley Manufacturing Co., York, Pa.



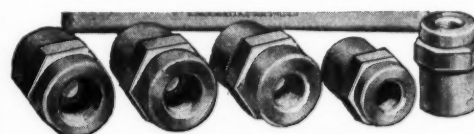
Manley quick detachable wrecking crane



Cross section of Worthington Feather valve air compressor in which the reciprocating parts are balanced

## Mack's Wheel Pullers

Mack's wheel pullers are made in sizes to fit every car and so built that the shock is distributed, a pilot preventing damage to the threads while the threaded body prevents damage to the end of the



Mack wheel pullers

axle shaft. Because of their short, sturdy construction they prevent an off center blow from springing the axle shaft. Heavy duty pullers are also made for trucks on special order. In use the hub cap of the wheel to be taken off is removed and the opposite wheel jacked up. Next the axle shaft nut is removed and the Mack's wheel puller screwed tightly to the axle shaft. The puller is then struck with a hammer the jar of which loosens the wheel. The carbonized pilot fitted to the inside of the puller is made a slightly loose fit and the body of the puller is made of machined steel, heat treated after machining. The mechanic's set containing five pullers which take care of practically every standard make of car, lists at \$10.00. The smallest of these has a thread size 5/8 in. by 18 in. for such cars as Ford, Chevrolet, Star, Essex 6 etc. and the largest has a thread size 1 1/8 in. by 12 in. for cars as the Haynes 57, Buick Master 6, Fulton Model A truck, etc. Heavy duty truck pullers in sizes from 1 1/4 in. to 1 1/2 in.—12 S. A. E. list at \$5.00 and \$6.00 respectively. These pullers are made by the American Sharpening Machine Co., Kalamazoo, Mich.



# EDITORIAL

## More Roads Are Coming

IN this issue of MOTOR AGE is an extensive article on the progress being made in city and country in building streets, highways and parking places to relieve traffic congestion. The last few years of unprecedented increase in the number of motor vehicles have resulted in almost intolerable conditions in the vicinity of many large and medium sized cities. Even in the less populous centers the available paved highways frequently have been found inadequate.

But there are many encouraging signs. Not only are the states and counties building modern highways, but cities of the first rank are spending millions of dollars to open up the bottle necks and give free flow to the traffic that comes from both town and country.

In and near such cities as Chicago the delay and traffic jams that result from narrow and inadequate outlets, railway grade crossings and devious routes that have to be followed cost the motor vehicle users vast sums. That is why cities like Chicago can afford to put many millions of dollars into the construction of such traffic expedients as the solid concrete double-decked Wacker drive or the great proposed viaduct that will connect the north and south sides across a vast expanse of railway yards and the Chicago river.

Activities like these, which are being duplicated, on a comparable scale, in hundreds of other cities and towns mean a great deal to the automotive trade.

*Service with a smile is a good motto, but whose smile is it? There should be two smiles—one by the dealer and one by the customer.*

## Ask 'Em to Buy Again

THERE are some merchants in the automotive business who seem to think that when once they have feebly whispered in a customer's ear, "Wouldn't you like to buy?" they have fulfilled all the requirements of the Ask 'Em to Buy Club and are thenceforth elected to full membership with access to the treasury and nothing more to do but count their profits. They seem to think they have spoken a magic password that admits them to a higher circle wherein the streets are paved with gold and no one worries. There they appear to have no use for business energy and soon forget even the magic words that they depended upon to bring them immunity from further industry.

Asking them to buy is not a thing to be done once and forgotten. The successful man in any business practices it constantly. He may not be always droning into the ears of customers, "Won't you buy this or that?" Probably not. More than likely his verbal entreaties are in the way of subtle suggestion. "Here is a fine little article that will

give you a lot of pleasure and comfort in your driving." "You will like this device so well that after you have tried it you wouldn't let it be taken off your car for anything." "If you would like to try this article I'll put it on your car and if you don't like it I'll take it off and you won't owe me a cent."

But asking them to buy is not always by word of mouth. The air of cheerfulness with which customers are waited on is a distinct invitation to come back and buy more. Clean merchandise well displayed with the price plainly marked speaks louder than words in its appeal to the customer. Intelligent advertising wisely placed is another constant invitation to the public to buy.

There has been criticism of automotive merchants that they do not know how to sell goods. This criticism has been directed especially at dealers in accessories and supplies. We know that the proportion of good merchants in the automotive trade probably is as great as in any other industry. But still there are many dealers who need encouragement and help in the direction of promoting sales.

The Automotive Equipment Association has done a wonderful work with its Ask 'Em to Buy campaign. But there are some indications that this campaign has not been recently pushed, that it has lagged due to the energy that the merchandising department of the A. E. A. has diverted to other phases of its beneficial work.

Now would be a good time to again turn the spotlight on "Ask 'Em to Buy" and leave it there. This campaign has such vast possibilities and can be expanded to so great an extent with profit to the whole industry—cars, parts, accessories, supplies, equipment—that if it does nothing else but properly develop the Ask 'Em to Buy movement the A. E. A. and its merchandising department will have rendered a service of inestimable value to the industry.

*How long will the recollection of quality continue after the last note is paid?*

## Common Sense in Buying

RETAIL dealers in the automotive trade are constantly being given the opportunity to "get in on a good thing." A chance to buy goods at special discounts, bargain lot assortments, exclusive agencies and what not. There is usually something the matter with any proposition that is held up as offering the dealer the opportunity to buy at extremely low prices or make an exorbitant profit. Legitimate business is pretty well standardized and competition maintains a fairly level basis of prices and profits on reputable merchandise. Dealers who think they are getting special advantages by devious methods usually find they are stung in one way or another. It pays the dealer to confine his buying to reputable establishments about whose honesty and integrity there can be no doubt.

# Industry Continues Ahead of 1924

## Ford Production Is Rapidly Turning Toward Normality

### Largest Gains in 1925 Business Thus Far Are in Export Volume—Parts and Equipment Best

NEW YORK, Sept. 23.—The decrease of approximately 140,000 in car and truck production in August as compared with July is an indication of the divergent courses taken during the last six or eight weeks by the leading factors of the industry. A majority of the producers reported gains in August and early September over the July levels, but Ford output has been at the lowest point of recent years. Ford production normally is slightly more than 50 per cent of the total for the industry.

As September draws near its close, the situation is being reversed, and Ford is rapidly gaining while some of the others are tapering off. But conditions on the whole continue to be better than they were last year at this time. This is emphasized by reports of the representative parts, accessory and service equipment manufacturers, showing that the year to date has been 30 per cent over the corresponding period of 1924 in volume of business. A survey of prospects in these allied industries indicates that about the same ratio of gain will continue until the end of the year.

At the same time, the current business being done by original equipment companies, and by the automotive steel producers, indicates clearly a progressive decline in car production from now on. Truck and bus output is being maintained on a more even basis, and there is no indication of very considerable month to month changes in this field.

The largest gains for 1925 so far have been in exports of motor vehicles. If export business for the last six months is equal to that of the first six, the total for the year will be about 540,000 vehicles, as compared with the record of 377,000 made last year.

### NEW OAKLAND MODEL

DETROIT, Sept. 21.—A new two-passenger Oakland roadster, listing at \$975, has been added to the latest six series, it is announced today by the Oakland Motor Car Co. Finish is pyramid two-tone duco with red striping and upholstery is in genuine leather. Special features include one-piece windshield and collapsible top.

### SAFETY CONTEST PLANNED

WASHINGTON, Sept. 19.—A trip to the national capital and cash prizes will be awarded to the winners of the fifth annual national safety lesson and essay contest sponsored by the National Automobile Chamber of Commerce and conducted by the Highway Education

Board. The essay contest is open to children in the grade schools, while teachers in the grade schools may compete in the essay lesson contest, according to an announcement made here by the chamber. The first prize for the pupil will be a trip to Washington and a gold watch; the first prize for the teacher will be \$500 in addition to the trip to the National Capital.

## Attention Is Called to Trade Marks

NEW YORK, Sept. 19.—The need for warning automobile companies to attend promptly to the renewal of expiring trade marks is seen by several men of the industry here who have had occasion to look into the situation.

Many trade marks are expiring this year, as the present Federal act under which they were issued for twenty-year terms was passed February 20, 1905 and made effective April 1, 1905. Applications for a renewal should be made six months prior to the date of expiration or the registration automatically lapses.

In some instances, it is reported, company executives have overlooked the necessity for applying for renewals.

### REMY PLANS NEW PLANT

INDIANAPOLIS, Sept. 19.—The Remy Electric Company of Anderson, Ind., has announced that it is establishing an additional plant at Muncie, Ind., to take care of business from old customers and to handle models on which it will go into production shortly. The new Muncie plant, one of the factory buildings of the Muncie Products Company, a division of the General Motors Company, has a floor area of 80,000, and the force that will be established there will have about 300 persons when it gets into operation. In making the announcement C. E. Wilson, general manager of the Remy Company, also announced that A. B. Gomery, who has been chief inspector of the Remy plant, will be superintendent of the Muncie plant. He will be succeeded at Anderson by M. E. Van Meter. Fred E. Kroeger has been promoted to the position of factory manager with general supervision over the Remy plants 1 and 3 at Anderson and the Muncie plant also.

### FORD BOOKING HEAVY

CHARLOTTE, N. C., Sept. 19.—Orders for Ford cars totaling 10,161 were booked in this territory by authorized dealers within a week after the announcement of the new models, according to an announcement at the Ford Motor Company's assembly plant here.

## August Output of Passenger Automobiles Totals 221,756

### Production Both in U.S. and Canada Shows Decrease From July Figures

WASHINGTON, Sept. 21.—August production of motor vehicles, as announced by the Department of Commerce, was 221,756 passenger cars and 37,643 trucks, of which 214,326 passenger cars and 36,207 trucks were made in the United States, and 7,430 passenger cars and 1,436 trucks in Canada.

Production in both the United States and Canada showed a decrease from July figures, this being accounted for almost entirely by the fact that Ford production in August was restricted by preparation for the improved models recently announced.

Passenger car production in the United States and Canada fell from 357,883 in July to 221,756 in August, and truck output decreased from 41,748 (revised figures) to 37,643.

The total of 214,326 passenger cars produced in the United States in August was 133,039 less than the revised total production in July, while Canadian passenger car production dropped 3,725.

The decrease in United States truck production was 3,761, and the Canadian decrease was 344.

The total of 391,302 passenger cars and 47,822 trucks produced in the United States and Canada in April is the monthly high for the year so far, each month since showing a decrease, except that July truck output gained over June.

In August, 1924, passenger car production in the United States and Canada increased to 255,232 over the July total of 244,544, and truck output increased from 26,391 to 28,647.

Total passenger car production in both countries for the first eight months of 1925 was 2,516,339 against 2,351,913 during the same period of 1924, while total truck output for this year so far has been 316,215 as compared with 257,462 for the same months last year.

### ROBERTS JOINS KOKOMO

KOKOMO, Ind., Sept. 19.—Joseph J. Roberts, formerly sales manager of the Herbrand Company, Fremont, Ohio, has been placed in charge of sales in Michigan and Ohio, for the entire line of Kokomo Products, manufactured by the Kokomo Automotive Manufacturing Co., of Kokomo, Ind.

As direct factory representative, Mr. Roberts will sell to automobile manufacturers exclusively. An office has been opened at 14344 Robson Blvd., Detroit. The Kokomo line includes windshield wings, mirrors, transmission linings and Checkers.



## Motor Truck Industries, Inc. Holds Session in Michigan

**Next Meeting to Be Held in Washington Week of November 8**

BUCHANAN, Mich., Sept. 19.—More than 100 truck and parts maker executives attended the opening meeting of Motor Truck Industries, Inc., here this week.

"This organization," says B. A. Gramm, of Lima, Ohio, secretary and treasurer, "should not be regarded as a rival of any other, or as duplicating any work by any other. This is an association of executives banded together for the fundamental interests of the motor truck industry, the user as well as the builder, and it means a great help to every association that has anything to do with motor trucks."

Group committees were appointed on standardization of units, sales and finance. H. Colin Campbell discussed highway improvement as affecting standardization of automotive products and William H. Dawes, president, Central Trust Co. of Illinois, talked on greater protection for loans.

Directors and members were entertained by officers of the Clarke Equipment Co. at their plant. The invitation from the Department of Commerce to hold the next meeting in Washington was accepted. The meeting will be held during two days of the week of November 3. Twenty-five new members were admitted.

## Klugh Takes Duffus' Place With Pennsylvania Body

HARRISBURG, Pa., Sept. 19.—Claude S. Klugh, for nine years with the bureau of motor vehicles of Pennsylvania, as assistant registrar, has been selected as secretary-manager of the Pennsylvania Automotive Association, it is announced by E. T. Satchell, president. Mr. Klugh takes the place of R. C. Duffus, who has accepted a position with Hare & Chase, as manager of the Detroit office of that firm.

Plans are going forward rapidly under the direction of Mr. Klugh for the convention of the Pennsylvania association in Pittsburgh, October 12-14. Both Mr. Duffus, the ex-secretary, and Mr. Klugh, the new secretary, will be present at the convention.

Mr. Duffus has long been associated with the automotive industry and in his new capacity with Hare & Chase, will continue that association. He started in the automobile business in the Oldsmobile plant at Lansing 17 years ago, where he was motor builder, tester and race driver. He then joined the Buick engineering department where he worked with Walter P. Chrysler and C. W. Nash.

When Edward Ver Linden took charge of the Olds works, Mr. Duffus was made factory wholesale man for Illinois and Iowa, with headquarters at Chicago. He then joined Briscoe and Studebaker as wholesale man. During the war he bought

steel for Liberty motors for Packard, then retailed Packard in Detroit, then built and managed the Packard branch at Kalamazoo when Packard brought out the single six. Mr. Duffus then took over the Hupmobile and Pierce-Arrow contract at Kalamazoo.

Following this connection, he was made assistant general manager of the N. A. D. A. under C. A. Vane, and joined the P. A. A. three years ago.

## St. Louis Used Car Auction Opens With Spirited Bidding

ST. LOUIS, Sept. 19.—The first of five auctions of used cars conducted by A. A. Selkirk Company was held at the St. Louis County Farmers' Market, Sarah street and Laclede avenue last Saturday. Six automobile firms consigned ten cars each to Selkirk and there were 19 cars sold, ranging from a Ford which went for \$75 to a used Nash which brought \$625.

Expenses of the auction were prorated among the six firms participating but they were not otherwise identified with the endeavor.

About 200 persons attended and the bidding was spirited.

The auction will be repeated next Saturday morning and on each of the following two Saturdays at the same place. Should the business justify it this method of disposing of used cars will be continued throughout the winter.

## CHANDLER DEALERS MEET

CLEVELAND, Sept. 19.—A three days convention of Cleveland and Chandler dealers closed here last week with an inspection of plants of the two companies. There were 1,500 dealers in every state in the union in attendance, and reports from every section indicate that fall business will far eclipse the record of the corresponding period a year ago.

## O'BRIEN JOINS REO

DETROIT, Sept. 19.—R. C. Rueschaw, general manager of the Reo Motor Car Company has announced that Thomas T. O'Brien, formerly assistant sales manager of the Olds Motor Works has joined the sales organization of the Reo Motor Company.

## Revenue Collections From Industry Growing Smaller

**Decrease in Year is \$33,326,964.10  
—Total Levy for 1925 is  
\$124,686,745.30.**

WASHINGTON, Sept. 19.—The automotive industry contributed the sum of \$124,686,745.30 to the receipts of the Internal Revenue Bureau for the fiscal year ended June 30, 1925, it is shown in a preliminary statement of the Treasury Department just made public here. This total is considerably less than the sum of \$158,014,709.40 which the automotive industry paid during the fiscal year ending June 30, 1924.

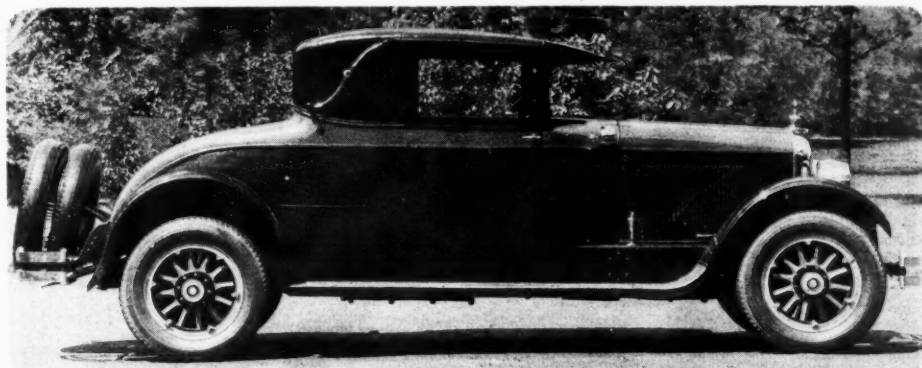
The decrease in the automotive receipts, however, the statistics reveal, is a normal one as the total collections from all sources of revenue for the fiscal year 1925 were \$2,584,140,268.24 or \$212,038,988.82 less than were the receipts for the fiscal year ended June 30, 1924.

In the itemized statement it is further shown that the receipts from automobile trucks and automobile wagons for the fiscal year ended June 30, 1925 were \$7,807,811.16 or \$3,702,751.89 less than in 1924; that the receipts from "other automobiles and motor cycles" for the fiscal year ended June 30, 1925, were \$94,141,539.29 or \$18,728,987.28 less than for the fiscal year ended June 30, 1924 and that the receipts from "tires, parts, or accessories for automobiles, etc." for the year ended June 30, 1925, were \$22,737,384.85 or \$10,896,224.93 less than the receipts for the fiscal year ended June 30, 1924.

## GEYLER LEAVES INDUSTRY

CHICAGO, Sept. 19.—Louis Geyler, president of the Louis Geyler Company, 2635 South Wabash avenue, one of the pioneers of the automobile trade in Chicago, has retired from the industry. He has severed his connection with the Case and Chandler companies, for which he was distributor in the Chicago territory and is now devoting his entire time to his radio interests. He is a stockholder and a director in the Electrical Research Laboratories.

## New Marmon Coupe



The new Marmon two-passenger coupe. See story on page 19



## Automotive Electrical Men Study Motor Bus Equipment

**Head Lighting and Parts Distribution  
Also Subjects Before Convention  
of Association**

EAGLESMERE PARK, Pa., Sept. 19.—Motor coach electrical equipment, head lighting and parts distribution were among the major topics discussed at the ninth annual convention of the Automotive Electrical Association which closed here this week.

The elimination of the dash ammeter and the use either of a voltmeter or a charge-off-discharge indicator in its place on motorcoaches having voltage regulators, was recommended. The reason given is that with voltage control the reading shown by the ammeter is often so small that the operator believes the battery is not receiving sufficient charge and he changes the adjustment of the regulator, with consequent overcharging of the battery.

In order to meet the requirements of summer and winter bus operation, it was adopted as recommended practice that provision be made so that the driver could change the charging rate conveniently, within a certain range. This control will be in the form of a small lever which can be thrown either into the summer or winter position.

In the discussion following the paper presented by Williard C. Brown of the National Lamp Works on head lighting, a resolution was adopted directing the preparation of a booklet on the adjustment of headlights and the equipment required for this service. This booklet will be mailed to all electrical service stations in the country.

The subject of parts distribution through authorized electrical service stations came in for much spirited discussion and the association plans to study this subject with the view of increasing sales through these outlets.

## Fabric Body for Essex Coupe

ST. LOUIS, Sept. 19.—Hudson-Frampton Motor Car Co., Hudson and Essex distributor in St. Louis, has introduced a

new fabric body for the Essex coupe here. The body is built by the Fabric Body Co. at Detroit and mounted on the Essex chassis here. Three color options are provided: midnight blue and black; gray and black and all black. The price is \$1275 delivered in St. Louis with full equipment.

## Fresh Merchandise in a Clean Store

(Continued from page 13)

have demonstrated that automotive merchandise can be sold for Christmas gifts. Merchants who have put special effort on Christmas selling campaigns have been bountifully rewarded with a large volume of profitable business. Now while the slick up process is under way is the time to make plans for a large Christmas business and select the kind of merchandise that will be salable. The proper display of this merchandise with the holiday background must be provided.

Summing up, then, the stock of merchandise should be slicked up by:

**Moving new cars that have been on hand too long.**

**Fixing up and reducing used car stock.**

**Getting rid of shop-worn and slow moving merchandise.**

**Filling up depleted stocks.**

**Stocking seasonal merchandise and arranging seasonal display.**

When these steps have been taken the slicked up store will present a new selling appeal.

## AUSTIN DEAL DEFEATED

NEW YORK, Sept. 19.—The proposed purchase by the General Motors Corp. of the Austin Motor Car Co., Ltd., has been defeated by the opposition of some of the share holders, according to cabled advices from London that have not been denied here. Reports of other developments that would result in the entrance of American manufacturers into the European light car field are unabated, however. W. R. Morris, governing director of Morris Motors, Ltd., Cowley, England, has been in Detroit and New York this week, and rumors have linked his concern with several American companies. Morris made about 20,000 cars last year, and 1925 production is said to be at the rate of 45,000 annually.

## Directory of Technical Books and Libraries Is Published

**Nearly 50 Large Collections on  
Transportation and Com-  
munication Included**

NEW YORK, Sept. 19.—There are almost 50 libraries in the United States wholly concerned with transportation and communication, it has been revealed by the second nation-wide survey completed recently by the National Special Libraries Association. Railroads lead the list in the volume of transportation literature, with automobiles and street railways coming next. Literature dealing with aviation is rapidly increasing and literature of radio is now well commenced.

Among the larger transportation libraries are: the collection of over 100,000 volumes of the Bureau of Railway Economics—the largest transportation library in the world; the libraries of the Boston Elevated Railway and the Philadelphia Rapid Transit Company; the general, engineering and legal libraries of the American Telephone and Telegraph Co., totalling some 25,000 volumes; the well-known library of the National Automobile Chamber of Commerce with its collection of 300,000 automobile patents; and the rapidly-growing aviation libraries of the Manufacturing Aircraft Association and the United States Air Service.

The subjects covered run from aeronautics to tractors; from motor trucks to navigation; from shipbuilding to subways; from tires to terminals; from radio to river improvement, and from telephones to marine engineering.

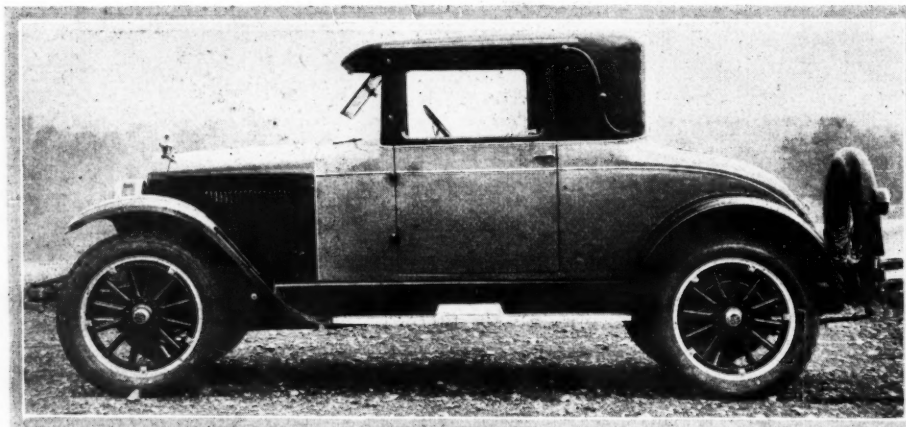
The results of the survey have been published in the form of a directory covering all special libraries in the business and technical fields. Use of the directory is facilitated by means of title, subject, and geographic indexes. Copies of the volume may be obtained from Gertrude D. Peterkin, treasurer of the association, Room 2513, 195 Broadway, New York.

## Chevrolet Demand Forces Big Production Increase

DETROIT, Sept. 19.—Sustained demand and a growing list of unfilled orders has caused the Chevrolet Motor company to increase heavily its production schedule during September.

The schedule revision involves an increase of more than 16 per cent over the production program originally planned for September. The new schedule calls for 53,165 motor cars and trucks in September, a Chevrolet record for that month and only 3,078 less than the highest production month in the history of the company.

Both day and night shifts have been augmented to maintain the new schedule. The company shipped 4,284 cars to dealers on Aug. 31, establishing a new record 600 higher than the largest previous shipment for one day.



## Cleveland Announces Four New Cars at Lower Prices

Two Coupes, a Touring De Luxe and a Sedan Are Added to 1926 Series

CLEVELAND, Sept. 19.—The Cleveland Automobile Company has announced four entirely new models in the 1926 series, and has reduced prices as much as \$200, the heaviest cuts applying on the new Cleveland Six four door sedan at \$995 and the special four door sedan which now lists at \$1295 f. o. b. factory. Formerly these models were priced at \$1195 and \$1495 respectively.

A coupe model, an entirely new creation, is announced at \$975. Included in this same series is Touring De Luxe model, which features a sportive touch throughout. This car lists at \$1025.

In the Special Six series a new coupe also makes its debut at the price of \$1175. The De Luxe Sedan and Sport Sedan have both been reduced \$100.00, now listing for \$1595 and \$1625. A \$50 reduction has also been made on the Sport Touring; this model is now \$1245. The Coach is priced at \$1295 while the two touring cars list at \$895 and \$1095, the latter being the Special model.

The new low priced Cleveland Six sedan is in beige brown. A gray forms the interior color scheme. It also includes a one piece windshield.

In the Special Six series the four door sedan carries Cleveland blue color as its body finish while the interior is in gray broadcloth. This creation is characterized by a raised bead in contrasting color, running completely around the car. A one piece, waterproof V type windshield is shown with this model. Pockets are provided in both rear doors and the hardware is in mat silver finish.

Both coupe models in the Cleveland Six series are finished in Cleveland blue with a bead in different color running from the hood to the rear of the car. Doors are wide to allow easy entrance and exit. A notable feature with these coupe models is the rear deck compartments which provide ample carrying space for luggage and other cumbersome articles of travel. Directly back of the driver's seat another storage space is available for small incidentals. Genuine leather constitutes the upholstery material of the coupes but gray corduroy is optional at no additional cost. There is ample room for three passengers in either of these coupes.

The new Touring De Luxe model is featured in two tone sage brush green with a body bead in different color. Throughout the interior it is finished in Spanish leather. It is fully equipped, carrying front bumper, bumperettes, windshield wings and is further enhanced at the rear by a trunk rack with base bars upon which is mounted a trunk. Windshield cleaner and rear vision mirror are also included as standard equipment with this model.

All models come in durable Duco

## Nevada Has Road of Gold

LOS ANGELES, Sept. 19.—Promises held out in ancient hymns that the future home of the good will have streets paved with gold are being realized in White Pine County, Nevada. Here the state highway department is building a road between Ely and McGill from materials including flour and flake gold. The precious metal was discovered in the gravel being excavated eight miles from Ely for road construction, and while it is not present in quantities sufficient for profitable mining, when panned it shows the colors so eagerly sought by the Argonauts of '49.

finish. Balloon tires are standard while four wheel brakes are provided as optional equipment.

The well known One Shot automatic chassis lubrication system is a distinctive feature with the 1926 Cleveland Six line, inasmuch as it eliminates entirely manual lubrication of the chassis.

## Chromium Cited as Perfect Substance for Reflectors

DETROIT, Sept. 19.—Chromium, good friend of all who work with steel, was introduced yesterday to Detroit automobile men and to the Illuminating Engineering Society delegates in convention at Hotel Statler here, as the perfect substance for automobile lamp reflectors. Robert J. Piersol, physicist, of East Pittsburgh, Pa., told the delegates it stood all the tests and strains which must be encountered in motor car headlamps.

Every owner of an automobile knows the anxiety of seeing his headlight reflectors gradually darken, without knowing what to do to stop it. Cleaning the reflectors usually results in scratches. Most reflectors are made of silver or nickel, the former being more common. At high temperatures, such as are found near electric lamps, the reflectors tarnish.

Chromium, widely used in the making of steel alloys, "Stellite," a substitute for tool steel, and stainless tableware, has excellent reflecting properties and its polished surface cannot tarnish or darken. It is very hard and cannot be easily scratched. Mr. Piersol predicted its use for flood-lighting and searchlight reflectors, as well as for automobiles.

## WILLYS ADVANCES KNAUS

PORTLAND, Ore., Sept. 19.—Appointment of A. H. Knaus, sales manager of the Willys Overland Pacific company, as assistant branch manager, in charge of the Seattle branch of the company is announced by J. H. Alfred, manager of the company. Jack Crittenden, formerly with the Portland Motor Car Company has been named sales manager of the Portland branch.

## Plans for Ford's Dirigible Given to Navy Department

Airship Would Be Smaller, Safer and Would Cost But About \$300,000

WASHINGTON, Sept. 19.—Construction of an all-metal "flivver" dirigible, invented by engineers of the Ford Motor Company is being seriously considered by the Navy Department, Secretary Wilbur declared here this week.

A group of Detroit experts, including William B. Mayo, chief engineer for Ford, have laid before the Bureau of Aeronautics complete details, illustrated by a model, of such an airship which, they assert, will answer all the purposes of the Shenandoah, but will be smaller, safer and less expensive.

Mayo and his associates offered to turn over all of their data—the results of four years' experiments—so that the Navy can build the dirigible at its Philadelphia aircraft factory.

The Ford dirigible would cost approximately \$300,000, as compared with \$2,000,000 for the Shenandoah. It would have the general shape of an egg, 150 feet long and 50 feet at its greatest width.

The motors would propel it at a cruising speed of 60 miles an hour, and its cruising-range would be 2,000 miles.

## FRASER LEAVES INDUSTRY

PEORIA, Ill., Sept. 19.—W. H. Fraser, for a number of years with the General Motors Corporation, has left the automobile industry to join the W. B. Wilde Co., Peoria, Ill., in the manufacture of oil burners. Mr. Fraser was branch and district manager for the Cadillac division of G. M. C. and comes to the Wilde concern as director of sales, a department being developed under the new extension policy of the oil-burner manufacturing concern.

## NEW BOOKLETS ISSUED

CHICAGO, Ill., Sept. 19.—The Stewart-Warner Speedometer Corp. has issued a series of booklets on "Shop Management" for the benefit of automotive retailers. These booklets cover the following subjects: Bookkeeping for Dealers in Cars, Parts, Repairs and Accessories; Stock Records for Replacement Parts and Accessories; Turnover in the Selling of Accessories and How to Determine Mark-Up for Profit Overhead. Another booklet entitled, The Golden Key" is a compilation of the experience of automobile accessory dealers who tell the various methods they have used to succeed. Copies of these booklets are sent free to interested dealers.

## SERGARDE WITH REO

DETROIT, Sept. 19.—Fabio Sergarde, for a number of years chief engineer of the Olds Motor Works, has joined the engineering forces of the Reo Motor Car Company, according to an announcement recently made by N. T. Thomas, vice president and chief engineer of the Reo company.



## Mack's New Home Declared Largest of Kind in Country

### Los Angeles Plant Occupies Two Blocks and Gives Five Acres Floor Space

LOS ANGELES, Sept. 19.—The new home of the Mack-International Motor Truck Corporation in Los Angeles, which was recently occupied, is declared to be the largest, most modernly and completely equipped building in the United States devoted to the sale and service of commercial motor vehicles. The plant is fully two blocks in length, all enclosed, and it represents an investment of approximately \$1,000,000.

The ground area covered by the new building is three and one-half acres and the total floor space is more than five acres. The salesroom floor is 160 feet long and has a depth of 57 feet. A portable screen of lattice work separates the used truck display from the new truck department. The screen is in sections and can be placed wherever desired, extending or reducing the area to meet the requirements. A unique feature, which is original and exclusive with the building, is the inside court, which is 125 feet by 100 feet in size.

The spacious shop has many points of unusual interest, particularly the type of construction of the repair pits. The pit proper is almost 400 feet long and nine feet wide, built of concrete. Access is from ramps at each end. A continuous bench 30 inches wide runs the full length. The bottom of the pit is four feet below the floor level. Daylight facilities are provided by means of windows which extend to within 18 inches of the top of the bench. At the floor level on the side opposite the windows are 14 bays each 24 feet wide. Each bay will accommodate two trucks and has a drift from the main pit five feet wide under each.

In front of each bay is a board runway 12 inches higher than the floor level thereby affording five feet of headroom clearance beneath the vehicle. This makes it possible for a mechanic to do his work standing upright. At the back of each runway is a bench for hand tools. A pipe railing incloses each bay and there is a stairway on both sides to the floor level.

### MODEL GARAGE PLANNED

SPRINGFIELD, Ill., Sept. 19.—The Weaver Manufacturing company, makers of garage equipment and supplies, is to erect a "laboratory" garage at 2158-68 South Ninth street, covering a tract 125x129 feet. It will be a distinctive enterprise, architecturally unique, all brick construction with re-inforced steel and cement floors. Repair departments will face street windows, the shop will be plotted as an ideal garage for exposition and demonstration of the Weaver products, and the builders hope to end forever the practice of condemning repair departments and garages, to ill-lighted, stuffy corners of a building. Although

primarily intended for a display room there will be a storage section and limited public service will be offered.

### NEW LACQUER BRANCH

ATLANTA, Sept. 19.—The Egyptian Lacquer Co. announces the opening recently in Atlanta of a new southern branch and warehouse as distributors of the line of Egyptian lacquer finish for automobiles in the southeastern territory. W. E. Hutchison is named as manager of the new branch.

### WITWER BATTERY BOUGHT

DANVILLE, Ill., Sept. 19.—The Danville Battery Manufacturing Company has been organized here by L. T. Allen, W. T. Gunn, J. E. Epler, J. F. Geddes, and H. E. Douglas and capital stock fixed at \$200,000. The new company has taken over the plant, equipment, contracts, and patents of the Witwer Battery Company, which suspended a year ago. Epler will be general manager. Production will be resumed shortly.

### SCOTT JOINS FLINT

FLINT, Mich., Sept. 19.—The announcement is made of the appointment of George R. Scott, one of the country's seasoned production men, as assistant general manager of the Flint Motor Company. He also becomes a member of the board of directors and of the executive committee. This appointment is just made public by R. H. Mulch, recently elected vice president and general manager, and C. O. Mini-gier, chairman of the executive committee.

### TAYLOR TAKES TECH CHAIR

DETROIT, Sept. 19.—C. Fayette Taylor, M. E., who has served as chief power plant engineer of the Wright Aeronautical Corp., of Paterson, N. J., for the last three years, has resigned to join the faculty of the Massachusetts Institute of Technology. Since Mr. Taylor's graduation from the Sheffield Scientific School of Yale, he has devoted his entire time to aeronautical engineering, having served with the National Advisory Board, and later at McCook Field experimental station prior to his association with the Wright Co. Mr. Taylor will take up his new duties on January 1, 1926, and will have charge of the research work in connection with aeronautical and automotive power plants.

### GILMER NAMED BY OLDS

CINCINNATI, Sept. 19.—R. C. Gilmer, formerly assistant manager of the Oldsmobile Company in the Kansas City zone has been named to succeed Walter Zimmerman, formerly in charge of the Cincinnati district for "Olds" distribution, who was recently appointed export manager of the Peerless Motor Car Company at Cleveland. Mr. Zimmerman was factory representative of the Oldsmobile company in the Cincinnati district for more than a year and has many friends here. Mr. Gilmer is making a fine record here in the sale of 1926 "Olds."

## Hupp Expects to Produce 15,000 Eights in 1925

### Statement From Factory Says Estimates Are Exceeded 50 Per Cent Every Month

DETROIT, Sept. 19.—The great international demand that the Hupmobile Eight has created will result in its sales for 1925, its first year, exceeding 15,000, says O. C. Hutchinson, general sales manager of the Hupp Motor Car Corporation, in a statement emphasizing the remarkable success which has attended that car ever since its inception.

"A record of 15,000 sales in its first year for a car of the high quality of this eight is a mark never before approached in the automotive industry," the statement reads. "It means a demand more than three times as great as that enjoyed, during its first year, by any other company manufacturing eight cylinder cars."

"What Hupmobile has actually done has been to increase its initial estimates for eight cylinder output over 50 per cent. Last December we made plans to produce 9,999 of these cars during 1925. What has happened is that we have exceeded our production estimates every month since the first car was built. Within five months the eight became the most demanded car of its type in the world. Since it gained that honor, its sales have been even greater, until today they are rapidly approaching a point where they will surpass those of all other eight-in-line cars put together. The reduction in its original prices of from \$180 to \$230 on each model brought the car to a point where it has since represented an outstanding value."

In making this record, the company announces that sales by its distributors and dealers for the last three months have exceeded those for the same period a year ago by nearly 50 per cent. Its export sales likewise show an unusual demand abroad, more than \$2,000,000 worth of these cars having been shipped to countries overseas during the first eight months of 1925.

### McCRUDEN IN ST. LOUIS

ST. LOUIS, Sept. 19.—J. H. McCruden, until recently Chicago branch manager of the Victor-Springfield Tire Co., is now associated with John Glenn of the Glenn Tire Co., Grand and Pine, St. Louis distributors of India Tires. J. L. O'Donnell, formerly of the General Tire & Rubber Co., has recently joined the sales force of the Glenn Tire Co.

### McCORMICK IN MILWAUKEE

MILWAUKEE, Sept. 19.—Malcomb McCormick, formerly sales manager of the McCord Radiator & Mfg. Co., Detroit, has joined Milwaukee Motor Products, Inc., Milwaukee, manufacturers of Milwaukee Timers, as director of sales and advertising. He succeeds W. P. Ferris, who has resumed active management of the Pressed Metal Mfg. Co., Waukesha, Wis.



## Sales by General Motors Are 21,704 Above August, 1924

**Total Purchases by Consumers**  
**76,546—Dealers Buy 75,973**  
**Last Month**

DETROIT, Sept. 19.—The sale of General Motors passenger cars to ultimate consumers during August totaled 76,546 or 21,704 greater than for August, 1924. The total for that month was 54,842. The sale of passenger cars and trucks to dealers by the manufacturing divisions also showed a corresponding increase, the total for last month being 75,973 or 27,359 greater than for August, 1924.

The following tabulation shows monthly sales of General Motors passenger cars by dealers to ultimate consumers and sales by the manufacturing divisions to the different dealers.

### Dealers Sale to Users

	1925	1924	1923
Jan. ....	25,593	33,574	31,437
Feb. ....	39,579	50,007	33,627
March ....	70,594	57,205	74,632
April ....	97,242	89,583	105,778
May ....	87,488	84,715	90,327
June ....	75,864	65,224	75,423
July ....	65,850	60,836	62,209
Aug. ....	76,546*	54,842	56,846

### Division Sales to Dealers

	1925	1924	1923
Jan. ....	30,642	61,398	49,162
Feb. ....	49,146	78,668	55,427
March ....	75,527	75,484	71,669
April ....	85,583	58,600	75,822
May ....	77,223	45,965	75,393
June ....	71,088	32,984	69,708
July ....	57,340	40,563	51,634
Aug. ....	75,973*	48,614	65,999

\*These preliminary figures include passenger cars and truck sales in the United States, Canada and overseas by the Chevrolet, Oldsmobile, Oakland, Buick and Cadillac manufacturing divisions of General Motors.

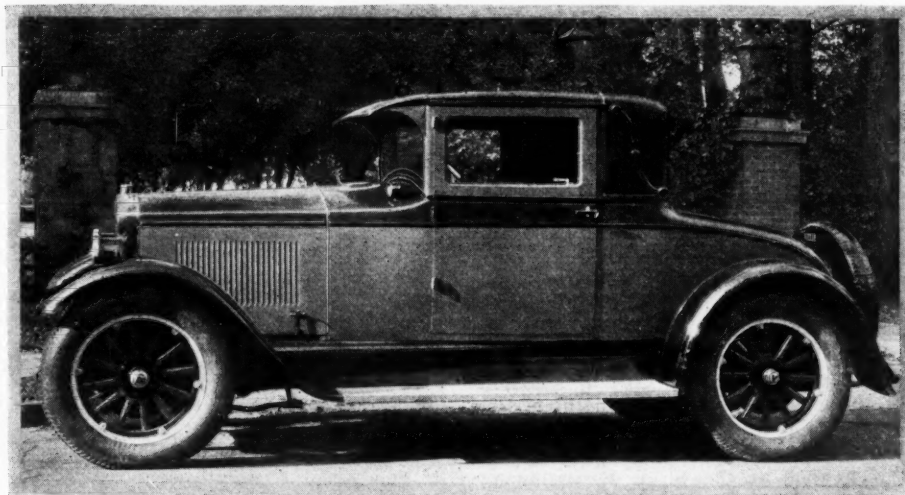
### YELLOW ENGINE OUTPUT UP

EAST MOLINE, Ill., Sept. 19.—A production schedule of 1,000 engines monthly throughout 1926 is anticipated by L. R. Ruthenberg, general manager of the local unit of the Yellow Sleeve-Valve Engine Works, which is now averaging 500 engines monthly with night shifts employed in some departments to maintain the schedule. Increased demand for the engines since the General Motors Corporation merger with the Hertz interests has sped the plant to capacity and further increases by the first of the year are expected.

### BABCOCK LEAVES HOLT

PEORIA, Ill., Sept. 19.—Col. George D. Babcock has resigned as manufacturing executive of the Holt Caterpillar Tractor Company and will make his headquarters in Syracuse, N. Y. His future plans are not yet announced. He was formerly associated in the manufacture of the Franklin motor car, and joined the Holt organization in 1918.

# Three-Passenger Coupe Is Latest Velie Product



Three-passenger Velie coupe finished in duo tone blue. Upholstery is in blue Spanish leather with headlining of matched broadcloth

A three-passenger coupe in duotone blue duco is the latest of three new body types recently introduced by Velie Motors Corp., Moline, Ill. It is mounted on the standard Velie chassis of 118 in. wheel-base on which Lockheed hydraulic four-wheel brakes and balloon tires are standard equipment.

The new coupe is low hung and symmetrical in appearance. A curved steel visor is built integral with the roof. Laundaleet bow in black, nicked at the imitation joint, contrasts with the black leatherette of the top. The windshield is of the one-piece ventilating type and the cowl ventilator is operated from beneath the dash. An automatic windshield wiper, rear vision mirror and transmission lock are standard equipment.

Upholstery is of grained blue Spanish leather with headlining of matched broadcloth. The instrument board is in black with garnish rails to match. Speedometer, ammeter and oil gage are under a glass in a single panel of satin

silver—indirectly lighted by a lamp concealed within the panel.

The light control lever is placed on the steering post and the ignition switch and choke lever on the dash at each side of the steering post. The seat is 46 in. wide, seat back to floor board, 43 in. and from seat to roof 35½ in.

Dura hardware is used with four turn regulators on the door windows. Outside door handles are of black, with nicked ends. There is a package compartment behind the seat back and large space under the rear deck for cases, golf bags and large packages.

Finish is of duotone light blue below a ¾ in. black moulding running from radiator shell to the lower edge of rear deck and above a ¾ in. black moulding which encompasses the body at bottom of the superstructure from the windshield pillar. The space between the moulding, top of cowl and hood is in dark blue. There is a stripe of imitation gold below the upper and above the lower moulding.

### DENVER HAS CAR HOTEL

DENVER, Sept. 19.—The Transcontinental Investment Company of Denver has just completed and opened for business the first Autohotel in this section of the country, with E. W. McDowell, president of the company in active management. This building, built under patents held by the Ramp Building Corporation of New York, is three and one-half stories in height with seven levels for car storage. There are no elevators, the cars being driven to their individual stalls under their own power, and the longest ramp is only 30 feet in length. and the steepest grade only 14 per cent.

No repair work will be done in this garage, and no accessories will be handled. The service will be confined to furnishing storage, washing, greasing, gas and oil.

### NEW DURANT BRANCH

NEW YORK, Sept. 19.—Colin Campbell, vice president of Durant Motors Inc., announces the establishment of a new wholesale office at 12 Colcord Building, Oklahoma City, in charge of Emery Miller, sales manager. This makes the nineteenth wholesale office established by Durant Motors since the reorganization of its sales facilities.

## Personnel and Training Are Features of S. A. E. Meeting

### Gear Grinding Also Brought Up for Discussion by Automotive Engineers

CLEVELAND, Sept. 19.—Better understanding of the human element and training of men in various phases of automotive work is necessary to further increases in production efficiency. That was one of the chief ideas brought out at the annual production meeting of the Society of Automotive Engineers, held here September 14-16. Mutual interchange of troubles and problems between automotive manufacturers and machine tool men, evidence of considerable interest in gear grinding, announcement by Col. H. W. Alden that Timken Axle Co. is working on an entirely new type of gearing, and discussion of inspection methods and machine tool safety were other outstanding features of the meeting.

Attendance at the S. A. E., gathering totalled over 300. The large machine tool exhibit held in connection with an exhibition staged by the American Society for Steel Treating convention attracted many of the automotive engineers. The A. S. S. T. annual meeting, which was held here September 14-19, had an attendance of over 3,000. An important statement developed at the steel treaters' meeting was that the automotive industry is large responsible for the current activity of the steel business.

Emphasizing quality as the paramount objective of production, and quantity and low cost as other prime considerations, K. T. Keller, general manager, General Motors of Canada, Ltd., told the S. A. E. men at the annual production dinner on Tuesday evening, that efficient production from every standpoint gets back to proper handling of personnel.

Col. H. W. Alden, Timken Axle Co. stated his belief that the present basis of gear tooth forms is all wrong and said that his organization now has in the mathematical stage some new developments.

R. M. Hidey, White Motor Co., and W. G. Cariens, Ajax Motors Co. gave the car builders' side of the machine tool problem, while Cook of Warner Swasey and Earnest F. De Breuille, general manager, National Machine Tool Builders' Association, and others, showed how the vehicle makers can get better results from further co-operation with the machine tool industry.

## Head of Morris Motors, Ltd., Studies U. S. Factory Methods

DETROIT, Sept. 19.—For the purpose of studying American production methods, W. R. Morris, governing director and owner of Morris Motors, Ltd., of Oxford, Coventry and Birmingham, England, has been spending a week in Detroit. While here, Mr. Morris confirmed the announcement of the purchase by him of the Leon Bollee Company, manufacturers of the

## Chenard-Walcker Wins Boillot Cup



Lagache in Chenard-Walcker which won Boillot cup road race

PARIS, Sept. 1.—(By Mail).—Averaging 63.5 miles an hour for a distance of 325 miles, A. Lagache won the Georges Boillot Cup handicap road race at Boulogne yesterday, with a Chenard-Walcker car of 67 cubic inches piston displacement, carrying touring equipment. The winning car embodied many distinctive features.

The four cylinder engine had two big diameter vertical intake valves and one very small exhaust valve in the head, with operation by pushrods and overhead rockers, and at the base of the cylinder there was an auxiliary rotary exhaust valve. As the greater portion of the exhaust gases were discharged at the bottom of the stroke, the exhaust in the head did not need to be of big size, thus leaving space for two big inlets.

Another advantage of this design, for which Engineer Tote was responsible, was that with the additional exhaust port spark plugs did not overheat or give trouble. Although there were three valves in the head, room was found for the spark plug also in the cylinder head, the plug as well as the valve operating gear being under an oil tight aluminium cover.

The chassis and the body formed one construction, the width of the body being equal to the full length of the car, thus enabling the front wheels to be encased without interfering with steering. A narrower track was used at the rear, and the driving wheels were entirely hidden. Duralumin was used throughout for the body panelling.

This type of body was accepted by the Jury as being in accordance with touring practice, although being a distinct departure from standard design.

On the varied Boulogne roads the small Chenard-Walckers showed themselves equal in speed to cars of twice their piston displacement and under the handicap the bigger cars had no chance of catching them. Three cars started, but two were forced out with defects not associated with the engine.

Second place was won by Laly on a 183 cubic inch Aries and third position fell to C. M. Harvey on a 122 inch English Alvis.

The scratch cars were two Belgian Excelsiors driven by Arthur Duray and Charlier, which allowed 1 hr. 6 min. 30 sec. to the limit of cars, a couple of Austins of 46 cubic inch piston displacement.

## GAS TAX PARLEY PLANNED

MILWAUKEE, Sept. 19.—A national convention of state officials charged with administration of gasoline taxes in the various states will probably be called at Madison, Wis., this fall. Solomon Levitan, state treasurer of Wisconsin, has invited all state officials interested to attend such a meeting at Madison and out of 35 replies received thus far, 31 executives favor the parley. Forty-four states in the union have gas taxes.

Bollee car of Le Mans. This company has been a moderate producer of a high grade French car for many years, and Mr. Morris announced his intention of introducing modern American production methods in the French factory for the purpose of greatly increasing production.

Mr. Morris stated that his company in England has just finished the fiscal year with the production of 50,000 cars. This is ten times more than any other manufacturer in England



## Canadian National Motor Show Is Best Ever Held

**Attendance Sets Record—Authorities See 1926 As Dominion Industry's Greatest Season**

TORONTO, Sept. 19.—Canada's National Motor Show looks even better in retrospect than it did in prospect. Measured by the criterion of attendance, sales and active prospects it was the most successful event of the kind ever held in the Dominion. Automotive business since the first quarter of the current calendar year has been excellent in Canada and continues so. The summer sales valley proved unprecedentedly small and shallow and it is the consensus in the trade that the automotive year of 1926 will be the best in the history of the industry in Canada. The current production schedules of the motor plants of the Dominion are record breaking ones.

Back of the demand that has produced this unprecedented output is a growing prosperity. Following his annual national survey T. A. Russel, the re-elected president of the Automotive Industries of Canada (the N. A. C. C. of the Dominion) declared that the Canadian West is harvesting a crop that will net it two hundred millions of dollars more than the very profitable crop of last year.

The fact that the Canadian dollar has been above par for a considerable period is indicative of the soundness of Canadian credit and the incipient prosperity evidenced by growing optimism and expressed in the record demand for automotive products.

Sir William Letts, president of the British Society of Motor Manufacturers and Traders and the Crossley Company, Ltd., Charles Kettering, president of the General Motors Research corporation and past president of the S. A. E., and T. A. Russel, president of the Automotive Industries of Canada and Willys-Overland, Ltd., were the speakers at the C. N. E. directors' luncheon on automotive day. Among the United States automotive industry leaders who came to Toronto during the show, most of whom spoke at national dealers meetings convened by manufacturers, were Henry Ford, Charles Kettering, John North Willys, Field of Chrysler, Benjamin Gotfredson and E. H. McCarthy.

It is noteworthy that the annual meeting of the Automotive Industries of Canada was the most largely attended meeting of that organization ever held, every director being present and the conventions of the dealers called by the Canadian manufacturers—Chrysler, Dodge, General Motors, Gotfredson, Studebaker and Willys-Overland—each established a new record in attendance.

The attendance at the show likewise established a record. Approximately 1,000,000 persons saw the new season models. The Transportation Building could not accommodate all exhibits so some cars were displayed in the Coliseum

with the buses, trucks and automotive equipment exhibits, which drew far larger crowds than ever before.

More English makes were represented than in many years—A. C. Morris, Oxford and Morris Cowley, Rolls-Royce, Sunbeam, Trojan and Vauxhall among the cars and Leyland and Thorneycroft among the trucks. Col. A. Hacking, secretary of the Society of Motor Manufacturers and Traders stated while in Toronto that Humber, Morris and Standard are maturing plans to establish Canadian plants next year.

Among the passenger cars there were thirteen makes of "fours" represented. In the order they appeared on the floor plans they were: Chrysler, Dodge Bros., Vauxhall, Gray, A. C., Morris Cowley, Morris Oxford, Ford, Willys-Knight, Durant, Star, Sunbeam, Hupmobile, Chevrolet and Overland.

The twenty-nine "sixes", in the same sequence, follow: Packard, Chrysler, Rickenbacker, Gardner, Oakland, A. C., Peerless, Willys-Knight, Moon, Franklin Sunbeam, Reo, Ajax, Nash, Studebaker, Essex, Hudson, Rolls-Royce, Oldsmobile, McLaughlin, Marmon, Overland, Jewett, Paige, Flint, Pierce-Arrow, Chandler, Cleveland, Auburn. There were nine eights of which three were V. type—Cadillac, Lincoln and Peerless—and six of the "in line" type—Auburn, Diana, Gardner, Jordan, Packard and Rickenbacker. The little Leyland built Trojan is a two cylinder light car.

There were twenty bus and truck exhibits and seventy-five automotive equipment displays. The motor boats were shown in the Grand Stand Building and the tractors in the Tented City.

## New Federal 2-Ton Model Will Sell for \$500 Less

DETROIT, Sept. 20.—Sensing the strong demand for a truck of from 1½ to 2 ton capacity to be used in heavy duty work, both in highway transportation and heavy hauling, officials of the Federal Motor Truck Company of Detroit have announced their latest model, a truck of this capacity, motored by the famous Knight sleeve-valved engine, at a substantial reduction in price over the former Federal model of the same capacity.

The new model, at a new low price \$500 below that of the former Federal truck of the same capacity, brings the use of the sleeve-valved motor into the heavy duty trucking field, where it is expected to more than bear out the unusual performance records of hundreds of owners of the one-ton Federal-Knight truck which was introduced some time ago.

The absence of many parts found in the poppet type motor, lighter weight and stronger construction in the new model has met with acclaim by truck owners. It represents the first time that a sleeve-valve motored-truck has been introduced to the field demanding exceptionally sturdy construction.

## Cleveland August Sales Are Above Those of Last Year

**Volume for Month Is Within 9 Per Cent of July, 1925, Record**

CLEVELAND, Sept. 19.—Sales of both new and used automobiles in Cleveland during August broke all records for that month, according to the Cleveland Automobile Manufacturers' and Dealers' Association. The volume for the month just closed was within 9 per cent of the July record, and it was 100 per cent greater than in August, 1924.

The remarkable increase recorded is due to the announcement of improved cars and lower prices, selling points that can not be eclipsed, the association believes.

Bills of sale for new cars that were filed with County Clerk George Wallace during August totaled 3,993. This compares with 2,773 for August, 1924 and 3,095 for August, 1923.

The used car sales recorded totaled 13,853, as compared to 6,182 for August, 1924, and 6,303 during August, 1923.

In July this year there were 4,383 sales of new cars recorded, the decline during August being but 9 per cent this year, while last year the drop in sales from July to August was 19 per cent.

## VAN FLEET JOINS PEERLESS

CLEVELAND, Sept. 19.—F. A. Van Fleet, for the last 10 years managing editor of the State Journal at Lansing, Mich., has been appointed advertising manager for the Peerless Motor Car Co. For a number of years he was engaged in editorial work in Detroit, specializing on the automobile industry. He was at one time secretary to the mayor of Detroit.

## INAUGURAL RACE OCT. 17

SALEM, N. H., Sept. 19.—The Rockingham Speedway near here is nearing completion and the management has all arrangements made for the opening race on October 17. This Inaugural Race will be 250 miles. Jack LeCain, general manager, declares this will be the fastest track in the world. It is being built by the Prince Construction Co. of Oakland, California. Its straightaways are 1,460 ft. long and the turns banked as high as 49½ degrees at the steepest part.

## BRISBANE BUILDS GARAGE

NEW YORK, Sept. 19.—Arthur Brisbane, nationally known for his newspaper editorials, will begin shortly the construction of a 750 car garage employing d'Humy motorramps on a plot, 100x200 ft., located on 102nd street just off Fifth avenue. The new garage will serve the needs of car owners residing in nearby apartments, and will be operated by the Fifth avenue and 102nd street Garage Corp., under the name of the Brisbane Fifth Avenue Garage.



# Along Automobile Row



**BOSTON.**—Linwood H. Young is now handling the Renault line with salesrooms on Newbury Street. For years Alfred Cutler Morse had the agency in Boston, but gave up business here and moved to Taunton where he made his home.

**KNOXVILLE, Tenn.**—The Red & Gray Tire Co., has announced plans for the construction of a new and permanent home at Locust Street and Western Avenue. The company conducts both a wholesale and retail tire department.

**HASTINGS, Neb.**—The Frank Rose Mfg. Co., announces the appointment of the E. H. Baughman Company, 88 Spring Street, Atlanta, Ga., to represent them in the southeast territory for the sale of Rose tire pumps, lubrication, equipment and other Rose products.

**EUGENE, Ore.**—B. F. Goodpasture has obtained agency for Buick cars. F. E. Calkins has been named agent for the Oldsmobile line.

**DETROIT.**—Stephens H. Moffitt, Nash dealer for Lansing, Michigan, and the nearby vicinity is building new and larger quarters at the corner of Michigan and Eighth Streets which will be occupied October 1.

**MINNEAPOLIS.**—Reilly-Craig Co., 1201 Harmon Place, Minneapolis, formerly distributing the Maxwell-Chrysler, has been made sales agent for the Willys-Overland, Inc., which has moved its wholesale and retail department to the Overland building, St. Paul.

**BUFFALO.**—The A. W. Haile Motor Company, 1291-1299 Main Street, has been appointed as an authorized dealer of the Ford Motor Company. The Haile Company will service the various Ford units.

**MEMPHIS.**—The Richardson Motor Sales Co., located at 257-259 East Butler Street, has taken on the Star and Durant lines of automobiles.

**WINNIPEG.**—The Robert Bosch Magneto Co., Inc., of New York, has appointed the Acme Magneto & Electrical Co., Ltd., this city, as official service station.

**ASHLAND, Ore.**—One of the largest business transactions made in this region this year was announced today when Harrison Brothers, who for several years have been Ford agents in Ashland, announced the sale of their business to H. L. Claycomb, formerly of Walla Walla. Harrison Brothers, purchased the Patton-Robinson agency for the Chevrolet automobile in Medford, Ore.

**SALT LAKE CITY.**—A. E. Tourssen, Oldsmobile distributor and dealer in Salt Lake City has been selected chairman of the advertising and publicity committee of the Salt Lake Chamber of Commerce Commercial Club.

**HARTFORD, Conn.**—The S. & M. Sales Corporation, handling the Overland and Willys-Knight, has occupied the north side salesroom and service station in the new Buick building at 80 Washington Street.

**LITTLE ROCK, Ark.**—Grady J. Greene, for the last three years service manager for 555 Tire and Service Company, Little Rock, has been appointed manager of the 555 Tire and Service Company at Stuttgart.

**MEMPHIS.**—The Memphis Motor Car Company, Hudson-Essex dealers, will have a sales and display room in the new twelve-story Hotel Peabody, which recently opened here.

**EUGENE, Ore.**—Sweet-Drain Automobile Company has taken the agency for the Studebaker line.

**BOSTON.**—The New England Cycle & Radio Company, Inc., for some years at 840 Washington Street has just moved into new and larger quarters on that same street. Originally it was a bicycle and accessory store, but has branched out into one of the largest radio houses in Boston.

**EDMONTON, Alta.**—Edmonton Motors, Ltd., Chevrolet and Reo dealers, has organized under the management of Frank Wolfe.

**PAWTUCKET, R. I.**—Bradburn Motors Co., Oakland dealer, has moved from old quarters at 91 Exchange Street, this city, to a larger building located at 127 High Street.

**COLUMBUS.**—E. H. Huffman & Sons, has been made agent for the Hudson and Essex lines by the Walter B. Zimmerman Co., central Ohio distributors.

**OSCEOLA, Ark.**—The Osceola Motor Company has occupied its new home on Walnut Street, erected at a cost of \$16,000 and equipped as a Ford sales station.

**WOODSTOCK, Ont.**—R. J. McCarron has been appointed representative in Woodstock of the Ford Motor Company, to succeed Elliott Bros.

**BOSTON.**—Snow, Coombs & McBeath, Ford dealers, are to move October 1 to 642 Beacon Street in the building formerly occupied by the Autocar Sales & Service Company.

**LONGVIEW, Wash.**—Fred Hess Motor Company has secured the Ford agency. Green-Porter Nash Company has opened a new garage at 1337 Vandercrook Way.

**MOBERLY, Mo.**—A. J. O'Hern of the Durant Motor Co., signed a new contract for the current year with A. C. Sibbitt & Son to handle the Durant and the Star cars.

**BLYTEVILLE, Ark.**—Tom A. Little, Chrysler dealer, International Motor trucks, farm implements and wagons, has moved to a new location with a floor space of 125 by 116 feet. A service station for automobile and truck customers and a full line of parts and accessories for Chrysler and International is carried.

**BUNCETON, Mo.**—The Cline Garage of Boonville, agents for the Chevrolet Motor cars moved from their home location with the Freeman Implement Co., to the building on Morgan Street, until recently occupied by the Hobrecht Motor Co., agents for Overland cars.

**ST. LOUIS.**—Ford-Seifert Auto Electric Co., has occupied a new building at 2629 Locust Street erected expressly for it. The company's business consists of the repair and replacement of all electrical automotive equipment.

**MILWAUKEE.**—Shawano Motor Car Co. has been organized at Shawano, Wis., with capital of \$10,000 by E. H. Ramm, E. F. Ramm and J. J. Henderson. Fords and Ford products will be sold.

**NORTHAMPTON, Mass.**—George P. Beaudry, president of the F. C. Magranis Co., Hudson and Essex dealer, has bought Mr. Magranis' interest in the concern and has become sole owner.

**HARTFORD, Conn.**—Harry L. Nichols, proprietor of the Nichols Auto Top Co., William P. Allen, formerly vice-president and sales manager of the L. & H. Motor Co. and Elmer P. Sellow, formerly service manager of the same organization have formed the firm of Nichols, Allen & Sellow and will sell and service A. B. C. fuel oil burners.

**MILWAUKEE.**—Berbanatz & Boll, Inc., a new Chrysler dealer agency, has been organized at 1914 North Avenue in Milwaukee.

**DES MOINES, Ia.**—The O'Dea Motor Co., former Ford dealer in East Des Moines, has taken the Hudson-Essex contract for that section of the city. John Beller of the Beller Franklin Co. has acquired an interest in the company.

**CHARLOTTE, N. C.**—E. G. Godwin has closed a contract for the Willys-Knight and Overland agency at Goldsboro, N. C. His salesroom is located at 212 North Cedar Street, there.

**MINNEAPOLIS.**—The Zenith Motor Co. Duluth, has moved into a new building at 222 East Superior Street, opposite the new Hotel Duluth. The building is three stories and will have service quarters as well as show rooms, also an oil station. J. H. Kohn is the new proprietor. The company is agent for Hudson-Essex cars.

**DES MOINES.**—Leroy V. Jones, manager for the Gibson Motor Company, the last year, has taken charge of the retail sales department of the Herring Motor Company, Ford distributors. Mr. Jones was formerly with the Cleveland Automobile Company before coming to Des Moines and is well known in automobile circles of the Middle West.

**TOLEDO.**—The Riley Nash Co. has been incorporated with an authorized capital of \$25,000 by William J. Dean, Harley F. Riley, Howard H. Harpst, Harold J. Rehoe and Frances Rothschild. The new concern will do a general agency and commission business in automobiles and trucks.

**KOKOMO, Ind.**—The Wilbur Johnson Company, of Indianapolis, has opened a branch agency here, with both sales and service departments for Cadillac and Hupmobile cars. Glenn Ellis, of this city, has been appointed manager.

**BOSTON.**—Knowlton M. Watson, for the last year in charge of the New England agency for Stewart trucks, has rejoined the sales force of the C. P. Rockwell Company, Nash and Ajax distributors.

**DETROIT.**—Willys-Overland last week gained a new establishment when Fred W. Turrill, manager of the Northwestern Sales Company of Bay City, Mich., opened a new show room for the display of Willys-Overland and Willys-Knight cars.

**NORTH ADAMS, Mass.**—The City Garage & Sales Co., Dodge dealer, has let the contract for a new \$15,000 service station, to be completed early in October.

**DES MOINES, Ia.**—Leroy V. Jones, manager of the Gibson Motor Co., Iowa distributor of Chandler and Cleveland, has joined the Herring Motor Co. as manager of retail sales. Mr. Jones will have supervision over Ford and Lincoln sales in Des Moines.

**COLUMBUS.**—Ralph E. Brown, formerly connected with the Columbus branch of the Kelly-Springfield Tire Co., has purchased an interest in the E. J. Benson Tire Co., distributors for the Corduroy line.

**MINNEAPOLIS.**—The Wills-St. Claire Automobile agency has moved to 723 Third Avenue. S. Kenneth Kingsley is manager.

**ST. LOUIS.**—Sam L. Chorlins, president of the State Tire Co., 2235 Washington Boulevard, is to sever his connections with the company and move to Florida to engage in the real estate business. The State Tire Co. will continue business as usual under the direction of other officers of the firm.

**NORTHAMPTON, Mass.**—Bernier & De Roschers have taken over the Chevrolet agency from L. A. Rust, who retains the franchise for Easthampton.

**MILWAUKEE.**—Joseph Collins of Madison, Wis., has become associated with the Wisconsin Motor Sales Co. of that city, dealers in Locomobile, Durant, Flint and Star cars.

**PITTSFIELD, Mass.**—Ralph Hooker has been appointed Chrysler and Maxwell dealer and is opening a show room in West Street.

**ST. LOUIS.**—The Riesmeyer-Yates Motor Co., a newly authorized Ford dealer, has begun business at 110 West Lockwood Avenue, Webster Groves, Mo., in the building formerly occupied by the Wielandy-Reller Motor Co.

**MILWAUKEE.**—H. F. Van Horn, former automobile editor of the Indianapolis Star and for the last two years publicity director for E. G. (Cannonball) Baker, test pilot for the Rickenbacker Motor Co., has joined the Stader Auto Sales Co. of Milwaukee, downtown Rickenbacker dealers.

**EDMONTON, Alta.**—The Paige-Jewett franchise has been taken over by Lou Keeling, formerly of NorWest Motors.



## With the Associations

### N. Y. Jobbers Plan Drive

SYRACUSE, N. Y., Sept. 19.—"Keep Your Shop Busy This Winter." This phrase is to be the keynote of a very active and money making campaign for car distributors and service stations, launched by the New York State Jobbers Association. Together with the A. E. A. "Ask 'Em to Buy", "Shop Profits", and "Profitable Maintenance" campaigns, this phrase is to be heard and recognized throughout New York State during the coming season as a major program.

At a special meeting of the New York State Jobbers Association held in Syracuse, the A. E. A. jobbers of New York State, exclusive of Metropolitan district, were represented 100 per cent strong. An entire day was spent in discussing the used car problem and the repair shows' winter slump as it has been noted in the last few years. Every jobber present was decidedly in favor of any action or movement which would assist their customers to improve this condition.

R. W. Procter of Black & Decker Manufacturing Company, a member of the merchandising committee of the A. E. A., and George Fleming of the Fleming Machine Tool Company, made addresses, starting a line of thought which culminated in a campaign to be developed by the New York State Jobbers Association and in the slogan, "Keep Your Shop Busy This Winter". A committee composed of Arnold, of the Onondaga Auto Supply Company, Syracuse; Murphy, of United Auto Accessories, Buffalo; and Whipple, of Whipple's, Binghamton; were appointed to confer with manufacturers, distributors, dealers, and associations who would be interested in this movement.

Active plans are already under foot to launch this campaign through a state wide agitation, sponsored by the 16 A. E. A. jobbers in attendance at the meeting. Very interesting and profitable developments for the car distributor and service station were prophesied and developments already started show evidence of a very active campaign to be launched within the next few weeks.

### Window Space Supplied

LOUISVILLE, Sept. 19.—Use of the show windows in the new headquarters of the Louisville Automobile Dealers' Association has been offered to the automotive trade of this city for the display of accessories and other automotive equipment, and at present the windows are booked for the next two months and many applications have been made for dates. Each firm is privileged to display its products for one week and in order to make the displays more attractive the windows will be well illuminated each evening until after theater hours.

### St. Louis Opens Winter

ST. LOUIS, Mo., Sept. 19.—The first fall meeting of the St. Louis Automobile Dealers' Association was held at the Claridge Hotel with a large number of dealers and their employees in attendance.

H. D. Bullock, sales expert from San Francisco, J. L. Spencer, automobile editor of the St. Louis Post-Dispatch and L. Frank Brown, special representatives of the Prudential Insurance Co., were the speakers.

Bullock said that 80 per cent of automobile sales were traceable to hard work and only 20 per cent to sales analysis but that expert sales analysis will double the results of the hard worker.

Spencer spoke on the relation of good roads programs to automobile sales and told how good roads would leave some communities now lively high and dry and make other backward towns into important centers.

Brown told how the insurance of the heads of firms increases the credit standings of those firms.

The Oliver Cadillac Co., recently appointed Cadillac distributor in St. Louis was elected to membership and Robert E. Lee, manager of the association presented the applications of five other companies for memberships and their election followed: they are, St. John's Motor Car Co., Paige and Jewett dealer, Love-Johnson Motor Co., Ford dealer, Townsend-Bohn Motor Car Co., Dodge dealer, West Side Nash Co., Nash dealer, MacCarthy-Pardue Motor Co., Chevrolet dealer.

### Delegates Are Named

CHARLOTTE, N. C., Sept. 19.—Five delegates were named by the Automotive Service Association, of Charlotte, N. C., to attend the convention of the National Tire Dealers' Association, at St. Louis, November 17-19. They are Keeley A. Grice, president of the local association, Victor Shaw, J. H. Huntley and J. C. McDonald. Mr. Grice, as president of the North Carolina Gas and Tire Dealers' Association, said he will endeavor to influence other local associations of this state to send delegates, in the hope a large combined delegation will attend the St. Louis event.

### Denver Sales Congress

DENVER, Sept. 19.—The National Automobile Dealers' Association has announced a sales congress to be held in this city December 9. These meetings are held with the sanction of the National Automobile Chamber of Commerce. A number of prominent speakers will attend, and the Denver Automobile Dealers' Association will be in charge of the local arrangements. Special emphasis will be laid upon the marketing of used cars.

### Portland Studies Credits

PORTLAND, Ore., Sept. 19.—At the regular monthly meeting of the Portland Standard Parts association eleven members of the association were present. The matter of credits was gone into thoroughly and a resume of the activities of the various members in the field was carefully considered. Due to the increased business in the garage and repair lines it was generally considered that the credit situation was much improved. The association has established a credit clearing house and it is found of much benefit to members who are asked to open accounts and also to those whose present credits in some instances are "overdrawn."

### Would Have All Cars Insured

CINCINNATI, Sept. 19.—Strong efforts will be made by the Cincinnati Automobile Club and the Cincinnati Automobile Dealers' Association to induce the Ohio General Assembly to pass an act providing for compulsory insurance for all motorists. One of the plans favored most is to place the burden of cost of the accident on the person found to be responsible for the accident. An objection to this plan is that numbers of irresponsible drivers have their cars heavily mortgaged and have no financial responsibility whereby they can be made to pay. Judge Louis R. Marx of the Superior Court at Cincinnati is carrying strong campaign to accomplish the compulsory insuring of all motor vehicles. An extra session of the Ohio legislature may be called in January, when this bill is to be introduced.

### New Orleans Plans Congress

NEW ORLEANS, Sept. 19.—Leaders of the automobile industry are expected to be in New Orleans for an annual sales congress of the National Automobile Dealers' Association and the National Automobile Chamber of Commerce, November 6, according to an announcement recently made by the publicity department of the New Orleans Association of Commerce. On the program will be addresses by the sales managers of some of the larger automobile manufacturers. This sales congress, which is one of several the N. A. D. A. is holding throughout the country this fall, will bring together in New Orleans a number of representative dealers and distributors in the Louisiana and Mississippi territory.

### Coombs Heads Radio Trades

TORONTO, Sept. 19.—R. H. Coombs, general manager of the Canadian National Carbon Co., Ltd., Toronto, has been elected chairman of the manufacturers' division of the Canadian Radio Trades Association.

## Indianapolis Chamber Plans Survey of Air Development

### Will Determine How Many Would Use Airport if One Were to Be Built

INDIANAPOLIS, Sept. 19.—An air mail survey is to be made at once by the Indianapolis Chamber of Commerce to determine what support air mail and Indianapolis Airport could depend upon. John B. Reynolds, secretary of the chamber, says that several air mail and express transport companies have made inquiries recently as to the support which such service can expect in Indianapolis, and the possibilities of the city establishing an adequate airport.

The survey will be made through the newspapers to learn of the number of local factories and commercial houses and individuals who will use the air mail and express service if it is established here. At present the city is without a suitable landing field although the government maintains an army flying field.

It is understood that representatives of Ford flying ventures were here recently to investigate the army field and the possibility of using it for the civilian service. Unfortunately, the government owns the ground of the landing field. It is said that if the field were operated by the government on leased land that some joint use of the army and the civilian air service could be worked out. This condition will necessitate the city acquiring a proper field for its airport if the survey shows sufficient demand to warrant such an investment by citizens.

Secretary Reynolds later announced that he will appoint a committee to meet and welcome the planes of the First Airplane Reliability Tour which leaves Detroit September 28 and reaches Indianapolis on the last leg of its journey October 2. It is hoped that by that time the survey will be completed and a plan for action, if such is deemed advisable, will be put to the citizens and interest in the venture stimulated by the arrival of the planes engaged in the tour.

### MOVIE COMEDY IS AD

CHICAGO, Sept. 19.—Motion pictures, in the form of a comedy-drama, are being employed by the Bassick Manufacturing Co., supplementary to their other advertising media, as a means of exploiting Alemite. The film, produced and released by the Atlas Educational Film Co. of Oak Park, Ill., is having national theatrical distribution in conjunction with a unique method of introducing and popularizing the Bassick company's lubricant. "Squeaks" is the title of the picture, which is being run in addition to the regular program, in numerous motion picture houses throughout the country. The plan operates in association with the local Ford dealer. When the film is shown, patrons of the theater are given coupons which they fill out, giving names, addresses and stating whether or not they

## Automobile Shows

- Dallas, Tex. Oct. 10-25  
Annual Automobile Show, State Fair Automobile Building, under the auspices of the Dallas Automotive Trade Association. J. W. Connell, manager.
- Fresno, Cal. Sept. 28-Oct. 3  
Fresno Motor Car Dealers Association. Fifteenth Annual Show in connection with Fresno District Fair.
- Oklahoma City, Okla. Sept. 26-Oct. 3  
Annual State Fair and Exposition. Passenger cars and accessories.
- Shreveport, La. Oct. 24-Nov. 8  
Twentieth Annual State Fair showing passenger cars, trucks and tractors.
- New York Nov. 15-21  
Twenty-first Annual Automobile Salon.
- Chicago Oct. 10-17  
Seventh annual Used Automobile Show under auspices of Chicago Automobile Trade Association, at Coliseum.
- Chicago Nov. 5-7  
Annual show in connection with convention of National Standard Parts Association, Coliseum.
- Chicago Nov. 9-14  
Seventh annual exhibit of the Automotive Equipment Association at Coliseum, in connection with annual convention.
- Chicago Jan. 30-Feb. 6  
Twenty-sixth Annual National Automobile Show and Eleventh Annual Automobile Salon.
- Boston Oct. 10-17  
World's Rubber and Tropical Exposition, Mechanics Hall, Chester I. Campbell, manager.
- Danbury, Conn. Oct. 5-10  
Eighth annual fair, Danbury Fair Auto Building, under direction of Danbury Agricultural Society, passenger cars, trucks, tractors, accessories, etc., H. Lage, manager.
- Chicago Sept. 28-Oct. 3  
Fourteenth annual Safety Congress and Exhibit, Rainbow Room, Hotel Winton, under direction of National Safety Council, A. M. Smith, business manager.
- Salt Lake City Oct. 1-7  
Third annual Automobile Show and forty-seventh annual State Fair in Coliseum Building, Wm. D. Sutton, supervisor of Automobile Show.
- Boston Oct. 12-17  
Annual radio show in Mechanics' Building. Shelton Fairbanks, manager.

### WILCOX MANAGES SHOW

MINNEAPOLIS, Sept. 19.—H. E. Wilcox of Wilcox Trux, Inc., of Minneapolis, has been named as manager of the 1926 automobile show of the Minneapolis Automobile Dealers' Association. The show will be staged in Minneapolis the week of February 8 to 13. Mr. Wilcox managed the 1925 show of Minneapolis dealers and it proved to be one of the greatest automobile shows Minneapolis has ever seen.

## Coming Motor Events

- Newark, N. J. Jan. 16-23  
Nineteenth annual Automobile Show under auspices of New Jersey Automobile Exhibition Co., Chamber of Commerce Building.
- New York Jan. 9-15  
National Automobile Show in Grand Central Palace.
- Louisville, Ky. Feb. 15-20  
Louisville Automobile Show, Armory, under the auspices of the Louisville Automobile Dealers Association, J. Garland Lea, manager.
- Charlotte, N. C. Nov. 11  
Fresno, Cal. Oct. 3  
Los Angeles, Cal. Nov. 2  
Rockingham (Salem, N. H.) Oct. 17  
Baltimore Oct. 24

### Races

### Conventions

- Buenos Aires, Argentine Oct. 3-11  
Pan-American Road Congress.
- Des Moines, Ia. Nov. 12-13  
Automotive Merchants' Association Convention.
- Montreal, Que. Oct. 7-12  
Fall convention of the Motor and Accessory Manufacturers Association.
- Pittsburgh, Pa. Oct. 12-14  
Pennsylvania Automotive Association Convention.
- St. Louis Nov. 17-19  
Annual Convention of National Tire Dealers' Association.
- Montreal Oct. 13-14  
Convention of the National Association of Automobile Insurance Companies.
- New York Jan. 11-13  
Second World Motor Congress, under auspices of National Automobile Chamber of Commerce.

### Foreign Shows

- Berlin, Germany Nov. 26-Dec. 4  
Annual Automobile Show in the Kaiserdamm.
- Buenos Aires, Argentina Oct. 3-11  
Pan-American Road Congress.
- London, England Oct. 8-17  
Olympia Passenger Car Show.
- London, England Oct. 29-Nov. 7  
Annual Truck Show.

### THOMPSON ADDS TO STAFF

CLEVELAND, O., Sept. 19.—C. E. Thompson, president of The Steel Product Company, announces the appointment of T. P. Cagwin as his personal representative for The Steel Products Company and Thompson Products, Inc., both manufacturers of automobile engine valves and chassis parts. Mr. Cagwin was formerly an official of the Gibraltar Savings Company, Cleveland.

### JOHN KELSEY RECOVERS

DETROIT, Sept. 19.—John Kelsey, president of the Kelsey Wheel Co., has returned to Detroit after having spent five weeks in the Mayo Brothers' Hospital in Rochester, Minn. Mr. Kelsey has recovered from a series of operations and his health now is said to be excellent.



## Details of Christmas Photo Contest Announced by A. E. A.

### Prizes Aggregating \$500 Will Be Given for Best Window Display by Dealers

CHICAGO, Sept. 19.—Details of the third annual Christmas display for automotive dealers have been announced by the Automotive Equipment Association. As in previous contests fifteen prizes aggregating \$500 will be awarded to dealers submitting photographs of the best trimmed windows featuring the idea, "Give Something for the Car This Christmas."

The first prize will be \$150, second prize \$100, third \$75, fourth \$50 and fifth \$25. The next ten prizes will be \$10 each.

The contest is open to all accessory dealers, car dealers, garage men, service station proprietors and others engaged in the resale of automotive equipment and service anywhere in the United States or Canada. No entry fee will be charged.

One condition of the contest is that the window must have displayed in a prominent place at least one large card, poster, streamer or paper sign reading, "Give Something for the Car This Christmas."

The contest will be decided from photographs which must be not smaller than post card size. It is suggested that they be eight by ten inches. Each photograph entered must have an official entry blank attached and must be endorsed on the back, "Approved and released for publication," with the date, firm name and address, and signature of the entrant. Entry blanks will be supplied free by A. E. A. members or their salesmen.

Judges of the contest will be the following editors of automotive business publications: Leon Banigan, Motor World Wholesale; Ken Cloud, Jobber Topics; A. V. Comings, Automobile Trade Journal; S. P. McMinn, Automotive Merchandising; Sam Shelton, Motor AGE; Ray W. Sherman, Motor; Ray P. Cloan, Automobile Topics. The contest closes at 5 p. m., Dec. 24.

Photographs should be mailed to Arthur R. Mogge, merchandising director, Automotive Equipment Association, City Hall Square Building, Chicago, Ill.

## Putting More Cars on the Road

(Continued from page 12)

lation increases in future years as it has in the past, such projects will have to be rushed to completion with all speed to cope with the situation.

Every city in the United States faces in varying degree these same conditions. The country population has its roads, or is getting them, and consequently visits the city a great deal more often than in former years. This adds another load to the city traffic

## SQUEEKS and RATTLES

### CLINICAL MELODIES



Doctor Neersite has been called to treat an injured mechanic. The old man forgot his spectacles and got the radio receiver instead of the stethoscope.

A driver of a taxi was recently fined for being intoxicated while at the wheel. We understand that suspicion was aroused when he started to slow down at corners.

—London Opinion

Priscilla—Going downhill yesterday I stripped the gears.

Prim—O-o-o-oh! How terrible! Did they show?

—Williams Purple Cow.

Mrs. Benrich: I gave my husband an imported meerschaum for his birthday.

Mrs. Newrich: Oh how charming! Touring or sedan?

—Ziff's.

burden not considered when the plans of the city were drawn. Nor, for that matter, was the automobile and its great and rapid development, counted upon when most of the larger cities of the United States were planned.

In their attempt to catch up with this unforeseen traffic condition, city planners and every one else interested, have put forth gigantic efforts. It is only recently, however, that they have been able to make appreciable headway. It is evident that a twenty-five year start on the part of the automobile business will take time for the traffic experts to overcome. They need help now and will need it still more urgently as long as the automobile continues to sell in such volume. But with proper encouragement it is evident that comfortable and economical traffic facilities will ultimately be provided for all the motor vehicles the people want to use.

A. N. Johnson, chairman of the highway research board of the National Research Council, in a recent address declared:

"Probably no more perplexing problem is presented than that of traffic congestion today. We provide radial or arterial roads which concentrate such a large flow of traffic at given points, as of itself to cause stagnation through these cen-

### Automotively Speaking

Nashes to Nashes,  
Stutz to Stutz,  
If the Buicks don't get you,  
The Chevrolets must.

—The Pure Oil News

Friend: Steady! You barely missed running over that man. If he hadn't jumped—

Lady Driver: Oh, that's all right. It was my husband, and the doctor said he needed exercise.

—Answers

While you were reading this, Henry Ford made ten dollars.

—Harvard Lampoon

### TRIALS OF BILL FIXIT



Absent-minded mechanic, shopping for some garters for his wife:

"What'd I want? Le's see. Oh yes, a set of hose clamps, I believe."

ters. We may bring traffic readily and rapidly to the confines of a city, only to discover that there is not traffic area sufficient to take care of the volume that has been so attracted.

"Eventually this must cause so great inconvenience as to reduce the amount of traffic. The problem before us, is to determine, if possible, what may be the ultimate flow of this highway traffic and the provisions which should be made for its accommodation. What may very likely happen is the essential readjustment of the distribution of population, tending to disperse it, rather than continue concentration as has been the case for so many years, witnessed by the upbuilding of our great cities."

### THOR HAS NEW BRANCH

CHICAGO, Sept. 19.—The Independent Pneumatic Tool Company, manufacturers of Thor pneumatic tools and electric tools, announces the opening of a branch office at 288 East Water street, Milwaukee. A complete stock of Thor tools, electric tools, spare parts and accessories will be carried. The Milwaukee branch will be in charge of G. H. Dussell, an experienced pneumatic and electric tool man, who has traveled in the Milwaukee district in the interest of Thor tools for a number of years.

# Prices and Weights of Current Passenger Car Models

SHIP.  
WT. PASS. BODY STYLE. PRICE

AJAX 108 in. W. B.  
2210 5-p Touring \$865  
2410 5-p Sedan 995

ANDERSON "41"  
2650 5-p Touring \$1,195  
2675 4-p Sp. Touring 1,445  
2925 2-p Coupe 1,425  
2875 5-p Sedan 1,695  
2925 5-p Sp. Sedan 1,895  
2975 7-p Touring 1,595  
3200 7-p Sedan 1,945

APPERSON "6"  
3100 5-p Phaeton \$1,575  
3130 5-p Sp. Phaeton 1,650  
3145 4-p Coupe 2,050  
3370 5-p Sp. Sedan 2,100  
3320 5-p Brougham 2,050  
"ST 8"  
3520 5-p Sp. Phaeton 1,995  
3750 4-p Coupe 2,450  
3770 5-p Brougham 2,450  
3790 5-p Sedan 2,595

AUBURN "6-66"  
4-p Sport-Roadster 1,495  
6-p Touring 1,395  
2900 5-p Brougham 1,595  
2885 5-p Sedan 1,795  
Wanderer 1,845  
"8-88"  
4-p Sport Roadster 1,975  
6-p Touring 1,995  
5-p Brougham 2,250  
5-p Sedan 2,350  
7-p Sedan 2,550  
Wanderer 2,400

BUICK "Standard"  
2-p Roadster \$1,125  
5-p Touring 1,150  
2-p Coupe 1,195  
4-p Coupe 1,275  
5-p 4d. Sedan 1,295  
5-p 2d. Sedan 1,195  
"Master"  
(120 in. W. B.)  
2-p Roadster 1,250  
5-p Touring 1,295  
5-p Sedan 1,495  
2d. Sedan 1,395  
(128 in. W. B.)  
3-p Sp. Roadster 1,495  
5-p Sp. Touring 1,525  
4-p Country Club 1,765  
4-p Coupe 1,795  
5-p Brougham Sedan 1,925  
7-p Sedan 1,995

CADILLAC "V-63" Standard Line  
(132 in. W. B.)  
4075 2-p Coupe \$3,045  
5-p Sedan 3,195  
4155 7-p Sedan 3,295  
4240 5-p Brougham 2,995  
4360 7-p Imperial 3,435  
4-p Victoria 3,095  
Custom Built  
(132 in.)  
Roadster 3,250  
(138 in. W. B.)  
4300 7-p Touring 3,250  
3960 5-p Phaeton 3,250  
5-p Coupe 4,000  
4190 5-p Sedan 4,150  
4250 7-p Suburban 4,285  
4355 7-p Imperial 4,485

CASE J. I. C.  
3260 3-p Roadster \$1,840  
3290 5-p Touring 1,885  
3470 5-p Sp. Touring 2,160  
3570 4-p Sub. Coupe 2,480  
3640 5-p Sedan 2,590  
3650 5-p Brougham 2,590  
"X"  
3020 3-p Roadster 1,570  
3050 5-p Touring 1,595  
3380 5-p Sub. Coupe 2,290  
3380 5-p Victoria 2,290  
3400 5-p Sedan 2,385  
"Y"  
3950 7-p Touring 2,225  
4320 7-p Sedan 2,975

CHANDLER "SS"  
3090 2-p Roadster \$1,795  
3132 4-p Roadster 1,785  
3085 5-p Sport Touring 1,595  
3223 7-p Touring 1,785  
3248 4-p Royal Dispatch 1,885  
3376 5-p Coach 1,595  
3809 5-p Chummy Sedan 2,045  
3525 5-p Met. Sedan 2,195  
3128 5-p Sedan 4d. 1,995  
3594 7-p Sedan 2,295  
3585 7-p Limousine 3,095

SHIP.  
WT. PASS. BODY STYLE. PRICE

CHEVROLET "Superior" (Series K)  
1780 2-p Roadster \$525  
1875 5-p Touring 525  
2030 2-p Utility Coupe 675  
2130 5-p Coach 695  
2215 5-p Sedan 775

CHRYSLER "Four"  
(109 in. W. B.)  
2300 5-p Touring \$895  
2405 2-p Club Coupe 995  
2510 5-p Coach 1,045  
2570 5-p Std. Sedan 1,095  
"Six" (112 3/4 in. W. B.)  
2805 4-p Roadster \$1,625  
2785 5-p Phaeton 1,395  
2895 5-p Coach 1,445  
2935 4-p Coupe 1,795  
2995 5-p Brougham 1,865  
3060 5-p Sedan 1,695  
3085 5-p Imperial Sedan 1,995  
3090 5-p Crown Sedan 2,095  
(118 3/4 in. W. B.)  
3225 5-p Town Car 3,725

CLEVELAND "31"  
2325 5-p Touring \$ 895  
2435 5-p Touring DeLuxe 1,025  
3-p Coupe 975  
2580 5-p Sedan 895  
"43"  
2750 5-p Touring 1,095  
2810 5-p Touring DeLuxe 1,195  
2910 5-p Sp. Touring 1,195  
3000 5-p Coach 1,295  
3-p Coupe 1,175  
5-p Sedan 1,295  
3190 5-p Sedan DeLuxe 1,595  
3190 5-p Sport Sedan 1,625

COLE "MASTER"  
3675 4-p Volante Touring \$2,325  
3795 7-p West. Touring 2,325  
3675 4-p Aero-Vol. Tour. 2,475  
4055 5-p Brouette Sedan 3,225  
4000 7-p Royal Sedan 3,225  
4100 7-p Royal Limousine 3,325  
CUNNINGHAM "V-6"  
4600 7-p Touring \$7,000  
4500 4-p Sp. Touring 6,500  
4700 4-p Coupe 8,000  
5000 6-p Limousine 8,500  
DAGMAR "6-70"  
3750 4-p Roadster \$3,500  
3800 4-p Sp. Tourer 3,500  
3700 4-p Phaeton 3,500  
4200 4-p Petite Coupe 4,500  
4200 4-p Petite Sedan 4,500  
4500 4-p DeLuxe Coupe 4,750  
4700 5-p Sedan 4,700  
4800 7-p Sedan 4,750  
"6-60"  
3100 4-p Roadster 2,185  
3200 4-p Sp. Touring 1,985  
3150 5-p Touring 1,785  
3400 3-p Coupe 2,345  
3500 5-p Sedan 2,345

DAVIS "90"  
2650 4-p M. o'War Road. \$1,495  
2915 4-p Legionaire Tour. 1,495  
2750 5-p Phaeton 1,395  
5-p Sedan 1,595  
3070 5-p Imperial Sedan 1,795  
3065 5-p Berline Sedan 1,795  
"91"  
2835 4-p Roadster 1,795  
3020 5-p Phaeton 1,695  
5-p Sedan 1,895  
3245 5-p Imperial Sedan 2,095  
3215 5-p Berline Sedan 2,095

DIANA "St. 8"  
2970 5-p Roadster \$1,895  
2990 5-p Phaeton 1,895  
3245 5-p Std. Sedan 2d. 1,995  
3245 5-p DeLuxe Sedan 2,195  
3130 5-p Cabriolet 2,095  
3140 5-p Sedan de Luxe 2,095

DODGE BROTHERS  
2473 2-p Roadster \$ 855  
2593 2-p Special Roadster 955  
2567 5-p Touring 875  
2695 5-p Spec. Touring 975  
2708 2-p Coupe "B" 960  
2823 2-p Spec. Coupe "B" 1,060  
2995 5-p "B" Sedan 1,045  
3077 5-p Spec. "B" Sedan 1,145  
3020 5-p Sedan A 1,195  
3107 5-p Spec. "A" Sedan 1,280  
2723 5-p Coach 1,035  
2823 5-p Spec. Coach 1,135

DORRIS "6-80"  
4120 4-p Pasadena Tour. \$4,150  
4115 7-p Touring 4,150  
4193 4-p Coupe 4,985  
4200 5-p Sedan 5,550  
4310 7-p Sedan 5,800

SHIP.  
WT. PASS. BODY STYLE. PRICE

DUESENBERG Straight "8"  
3920 2-p Roadster †  
3970 4-p Roadster †  
3700 4-p Phaeton \$6,650  
3920 4-p Phaeton †  
3980 4-p Sp. Phaeton †  
4-p Sedan †  
4500 7-p Sedan †

†Manufacturers do not quote list prices.  
DU PONT "D"  
3300 2-p Roadster \$2,600  
3550 5-p Touring 2,600  
3800 7-p Touring 2,750  
3550 5-p Touring Sedan 3,400  
DURANT A-22  
2-p Sp. Roadster 900  
2225 5-p Touring 810  
5-p Spec. Touring 930  
2395 4-p Coupe 1,090  
4-p Spec. Coupe 1,160  
2505 5-p Sedan 1,150  
5-p Spec. Sedan 1,280

ELCAR "4-55"  
2560 5-p Touring \$1,095  
2900 5-p Coach 1,195  
2779 5-p Sedan 1,395  
"6-65"  
5-p Touring 1,295  
2779 5-p Coach 1,395  
2900 5-p Sedan 1,595  
"8-80"  
4-p Roadster 2,315  
3700 5-p Sp. Touring 2,165  
7-p Touring 2,265  
3000 3-p Coupe Roadster 2,315  
5-p Sedan 2,265  
4050 7-p Sedan 2,765  
4000 5-p Brougham 2,865

ESSEX  
2185 5-p Touring \$850  
2370 5-p Coach 795  
FLINT "55"  
3325 4-p Sport Roadster \$1,950  
3245 5-p Touring 1,595  
3310 4-p Sp. Touring 2,050  
3245 4-p Coupe 2,195  
3595 5-p Sedan 2,285  
3565 5-p Brougham 4 d. 2,485  
"40"  
2715 5-p Touring 1,185  
2940 5-p Sedan 4 d. 1,495  
2965 5-p Brougham 1,575

FORD Without Starter and Dem. Rims  
1369 2-p Runabout \$260  
With Balloon Tires 305  
1494 5-p Touring 290  
With Balloon Tires 335  
With Starter and Dem. Rims  
1521 2-p Runabout 345  
With Balloon Tires 370  
1644 5-p Touring 375  
With Balloon Tires 400  
1749 2-p Coupe 520  
With Balloon Tires 545  
1882 5-p Sedan, Tudor 580  
With Balloon Tires 605  
1927 5-p Sedan, Fordor 660  
With Balloon Tires 685

FRANKLIN "11-A"  
2800 3-p Sport Roadster \$2,750  
2845 5-p Touring 2,635  
2965 3-p Coupe 2,700  
3175 5-p Sedan 3,090  
3080 5-p Sport Sedan 3,225  
3275 7-p Limousine 3,275  
4135 5-p Cabriolet 4,400  
5-p Oxford Sedan 3,172

GARDNER "6"  
3070 5-p Touring 1,395  
4-p Sport Roadster 1,595  
3210 4-p Cabriolet 1,845  
3280 5-p Sta. Sedan 1,595  
3290 5-p Sport Sedan 1,895  
3300 5-p DeLuxe Sedan 1,895  
"8"  
3350 5-p Touring 1,995  
3360 4-p Sport Roadster 1,995  
3480 4-p Cabriolet 2,245  
3620 5-p Sta. Sedan 1,995  
3620 5-p Sport Sedan 2,295  
3600 5-p DeLuxe Sedan 2,495

GRAY "O"  
1750 5-p Touring \$595  
1880 3-p Coupe 825  
2020 5-p Sedan 845  
2130 5-p Royal Sedan 975

SHIP.  
WT. PASS. BODY STYLE. PRICE

HERTZ D-1  
3360 5-p Sedan \$1,695

HUDSON "Super Six"  
3425 7-p Phaeton \$1,250  
3450 5-p Coach 1,195  
3425 4-p Brougham 4 d. 1,495  
3675 7-p Sedan 1,695  
HUPMOBILE "R"  
2595 2-p Roadster \$1,225  
2705 5-p Touring 1,225  
2760 2-p Coupe 1,350  
2875 5-p Club Sedan 1,375  
"E"  
3050 2-p Roadster 1,795  
3270 4-p Roadster 1,895  
3135 5-p Touring 1,795  
3295 2-p Coupe 2,095  
3295 4-p Coupe 2,095  
3410 5-p Sedan 2,195

JEWETT "23-25"  
3025 4-p DeLuxe Road. \$1,500  
3015 5-p DeLuxe Touring 1,320  
3000 5-p Coach 2d. 1,245  
3150 5-p DeL. Coach 2d. 1,400  
3305 5-p DeLuxe Sedan 1,680  
JORDAN Series "A"  
3330 2-p Playboy Road. \$2,275  
3340 5-p Touring 2,275  
3450 3-p Friendly "9" 2,575  
3625 5-p Brougham 2,575  
3520 4-p Victoria 2,475  
3525 5-p Sedan 2,675  
3470 7-p Sedan 2,925

KISSEL "55"  
3130 2-p Speedster \$1,785  
2-p Sp'dster DeLuxe 2,185  
4-p Speedster 1,995  
4-p Sp'dster DeLuxe 2,235  
3530 2-p Enc. Speedster 2,285  
2-p Enc. Sp'd'r DeL. 2,785  
3190 4-p Tourster 1,895  
4-p Tourster DeL. 2,085  
2980 5-p Phaeton 1,685  
3170 5-p Phaeton DeL. 1,885  
7-p Touring 1,785  
7-p Touring DeL. 1,985  
3430 4-p Coupe 2,185  
4-p Coupe DeLuxe 2,585  
3540 5-p Brougham Sedan 1,995  
5-p Broug. Sed. DeL. 2,685  
5-p Brougham 2 d. 1,795  
4070 7-p Sedan DeLuxe 3,285  
4010 7-p Berline Sed. DeL. 3,385  
3530 5-p Victoria 2,285  
5-p Victoria DeLuxe 2,685

"75"  
2-p Speedster 2,195  
2-p Speedster DeL. 2,485  
4-p Speedster 2,295  
4-p Speedster DeL. 2,585  
2-p Speedster DeL. 2,585  
2-p Enc. Sp'd'r DeL. 2,985  
4-p Tourster 2,195  
4-p Tourster DeL. 2,385  
5-p Phaeton 1,985  
5-p Phaeton DeLuxe 2,185  
7-p Touring 2,085  
7-p Touring DeLuxe 2,285  
4-p Coupe 2,485  
4-p Coupe DeLuxe 2,885  
5-p Sedan 2,395  
5-p Broug. Sed. DeL. 2,985  
5-p Brougham 2 d. 2,195  
7-p Sedan DeLuxe 3,485  
7-p Berl. Sed. DeL. 3,585  
7-p Victoria 2,585  
7-p Victoria DeLuxe 2,985

LEXINGTON "Concord"  
2950 5-p Touring \$1,595  
3000 5-p Touring (Enc.) 1,695  
2950 5-p Spec. Touring 1,795  
3200 5-p Sedan 2,185  
3425 5-p Spec. Sedan 2,445  
"Minute Man"  
3120 2-p Roadster 2,145  
3195 5-p Touring 2,095  
3489 7-p Touring 2,195  
3230 5-p Lark Touring 2,345  
3368 5-p Cal. Touring 2,495  
3395 7-p Cal. Touring 2,495  
3375 7-p Royal Coach 2,495  
3440 5-p Brougham 2,595  
3542 5-p Sedan 2,895

LINCOLN  
4380 2-p Roadster \$4,000  
4595 7-p Touring 4,000  
4565 4-p Phaeton 4,000  
Sport Touring 4,600  
Coupe 4,600  
Sedan 4,800  
Sedan 4,900  
Sedan 5,100  
Limousine 5,800

OLD  
2235  
2445  
2460



# Prices and Weights of Current Passenger Car Models

## SHIP. WT. PASS. BODY STYLE. PRICE

LOCOMOBILE "48"			
5280	4-p	Sportif Tour	\$7,460
5330	7-p	Touring	7,460
5680	5-p	Victoria Sedan	10,050
5464	7-p	Brougham	10,040
5640	7-p	Touring Lim.	9,500
5868	7-p	Enc. Drive Lim.	10,050
5600	7-p	Cabriolet	10,300

Jr.-8"			
3100	2-p	Roadster	2,150
3000	5-p	Touring	1,785
3400	5-p	Sedan	2,285
3350	5-p	Brougham	2,285

## McFARLAN "6"

"SV"			
3700	2-p	Roadster	\$2,650
.....	2-p	Spec. Roadster	2,900
3600	5-p	Touring	2,650
.....	7-p	Touring	2,750
3850	4-p	Coupe	3,180
3850	5-p	Sedan	3,180
.....	5-p	Spec. Sedan	3,180
3850	7-p	Sedan	3,280
.....	5-p	Sub. Sedan	3,380
.....	7-p	Sub. Sedan	3,480
.....	5-p	Brougham 4 d.	3,180

## "TV"

4000	2-p	Roadster	5,400
4600	4-p	Sp. Touring	5,600
4900	4-p	Coupe	6,720
5200	4-p	Tour. Sedan	6,720
5200	7-p	Tour. Sedan	6,810
.....	6-p	Sedan	6,720
.....	7-p	Sedan	6,810
.....	7-p	Spec. Sedan	6,810
.....	7-p	Enc. Sedan	7,110
.....	7-p	Sub. Sedan	7,110
5200	7-p	Town Car	9,000

## MARMON "74"

3695	2-p	Roadster	\$3,295
3604	5-p	Phaeton	3,295
3704	7-p	Touring	3,295
3799	5-p	Brougham Coupe	3,295
.....	4-p	Victoria Coupe	3,295
.....	2-p	Std. Coupe	3,295
3869	5-p	Sedan	3,295
3859	5-p	Sedan De Luxe	3,775
3999	7-p	Sedan	3,370
3974	7-p	Sedan De Luxe	3,850
3969	5-p	Sedan Limousine	3,900
3999	7-p	Sedan Limousine	3,975

## MERCER "6"

3860	3-p	Runabout	\$4,500
3950	6-p	Touring	4,500
3900	4-p	Sporting	4,500
4070	4-p	Coupe	6,250
4240	5-p	Sport Sedan	6,250
4350	4-p	Tour. Limousine	6,500
4300	4-p	Brougham	6,500

## MOON Series "A"

2490	5-p	Roadster	\$1,395
2675	3-p	Cab. Roadster	1,595
2510	5-p	Touring	1,195
2750	5-p	Coach	1,395
2750	5-p	DeL. Sedan 2 d	1,495
2850	5-p	Std. Sedan 4 d.	1,545
2850	5-p	DeLuxe Sedan 4d	1,695

## London

3270	5-p	Sp. Touring	1,985
.....	7-p	Touring	1,985
3590	5-p	Petite Sedan	2,540

## NASH "Special"

2870	2-p	Roadster	\$1,135
2980	5-p	Touring	1,135
3120	5-p	Sedan 2d	1,265
3300	5-p	Sedan 4d	1,545

## "Advanced"

(121 in. W. B.)			
3320	3-p	Roadster	1,375
3400	5-p	Touring	1,375
3550	5-p	Sedan 2 d	1,485

## "Advanced"

(127 in. W. B.)			
3480	7-p	Touring	1,525
3640	4-p	Victoria	2,090
3750	5-p	Coupe 4 d.	2,190
3830	7-p	Sedan	2,290

## OAKLAND "6"

.....	5-p	Touring	\$1,025
.....	5-p	Coach	1,095
.....	3-p	Landau Coupe	1,125
.....	5-p	Sedan	1,195
.....	5-p	Landau Sedan	1,295

## OLDSMOBILE "30"

2285	5-p	Touring	\$875
2445	5-p	Sp. Touring	980
2460	5-p	Coach	950

## SHIP. WT. PASS. BODY STYLE. PRICE

OLDSMOBILE (Cont'd)			
2660	5-p	De Luxe Coach	1,040
2535	5-p	Sedan	1,025
2735	5-p	De Luxe Sedan	1,115

## OVERLAND "91" 4

(100 in. W. B.)			
1919	5-p	Touring	\$495
.....	2-p	Coupe	625
2205	5-p	Sedan De Luxe	695
2202	5-p	Std. Sedan 2 d.	595

## "93" 6

(112 3/4 in. W. B.)			
2443	5-p	Sta. Sedan	895
2584	5-p	Sedan DeLuxe	1,095

## PACKARD "6"

(126 in. W. B.)			
3643	4-p	Roadster	\$2,785
3653	5-p	Touring	2,585
3595	4-p	Sp. Touring	2,750
3753	4-p	Coupe	2,585
3937	5-p	Sedan	2,585

## (133 in. W. B.)

3793	7-p	Touring	2,785
4043	7-p	Sedan	2,785
.....	5-p	Club Sedan	2,725
4143	7-p	Sedan Limousine	2,835

## "6"

## (136 in. W. B.)

4060	4-p	Runabout	3,950
4090	5-p	Touring	3,750
4023	4-p	Sp. Touring	3,900
4242	4-p	Coupe	4,650
4528	5-p	Sedan	4,750
.....	2-p	Coupe	5,775

## (143 in. W. B.)

4199	7-p	Touring	3,950
.....	5-p	Club Sedan	4,890
4655	7-p	Sedan	5,000
4710	7-p	Sedan Limousine	5,100

## PAIGE "21-24"

3875	4-p	Phaeton	\$2,165
3935	7-p	Phaeton	2,165
4100	5-p	Sedan De Luxe	2,395
4325	7-p	Sedan De Luxe	2,840

## PEERLESS "6-72"

(126 in. W. B.)			
3175	5-p	Touring	\$1,895
3425	5-p	Coupe	2,295
3500	5-p	Sedan	2,395

## (133 in. W. B.)

3275	2-p	Roadster	2,195
3300	7-p	Touring	1,995
3700	7-p	Sedan	2,505
3825	7-p	Limousine	2,695

## "8-67"

3950	4-p	Phaeton	2,845
3995	7-p	Phaeton	2,895
4300	5-p	Town Brougham	3,895
4310	5-p	Town Sedan	3,495
4400	7-p	Sub. Sedan	3,595
4525	7-p	Berline Lim.	3,795
4100	4-p	Victoria Coupe	3,245
4150	5-p	Sub. Coupe	3,295

## PIERCE-ARROW "33"

4350	2-p	Runabout	\$5,250
4500	4-p	Touring	5,250
4590	7-p	Touring	5,250
4730	3-p	Coupe	6,800
4800	4-p	Sedan	6,900
4960	7-p	Sedan	7,000
4750	4-p	Coupe Sedan	6,900
4730	6-p	Brougham	6,800
4850	7-p	Limousine	7,000
5060	7-p	Enclosed Lim.	7,000
4780	7-p	French Lim.	7,000
4730	6-p	Landaulet	7,000

## "80"

3205	2-p	Roadster	2,895
3260	4-p	Phaeton	3,095
3385	7-p	Phaeton	2,895
3430	5-p	Coach	3,150
3365	4-p	Coupe Laudau	3,820
3335	4-p	Coupe	3,695
3440	5-p	Sedan	3,895
3560	7-p	Sedan	3,995
3615	7-p	Enc. Drive Lim.	4,045

## REO "T-6"

3350	2-p	Roadster	\$1,665
3182	5-p	Sp. Touring	1,595
3350	2-p	Coupe	1,495
3400	5-p	Sedan 4 d.	1,565
3545	5-p	Spec. Sedan	1,745

## REVERE "25"

3900	2-p	Sp. Roadster	\$2,750
3975	4-p	Speedster	2,750
4050	5-p	Touring	2,750
4300	5-p	Sedan	3,800

## "M"

3700	2-p	Roadster	3,200
3800	4-p	Sportster	3,200
3970	5-p	Touring	3,200
4400	5-p	Sedan	4,000

## SHIP. WT. PASS. BODY STYLE. PRICE

## RICKENBACKER

"Six" (117 in. W. B.)			
.....	3-p	Roadster	\$1,595
.....	5-p	Phaeton	1,495
.....	3-p	Coupe Roadster	1,695
.....	3-p	De Luxe	1,820
.....	4-p	Coupe De Luxe	1,995
.....	5-p	Spec. Sedan	1,795
.....	5-p	De Luxe	1,920
.....	7-p	Sedan De Luxe	2,070
.....	5-p	Coach Brougham	1,595
.....	5-p	De Luxe	1,720

## "Eight" (121 1/2 in. W. B.)

.....	3-p	Roadster	1,995
.....	5-p	Phaeton	1,995
.....	3-p	Coupe Roadster	2,095
.....	3-p	De Luxe	2,220
.....	5-p	Spec. Sedan	2,195
.....	5-p	De Luxe	2,320
.....	7-p	Sedan De Luxe	2,470
.....	5-p	Coach Brougham	1,995
.....	5-p	De Luxe	2,120

## ROAMER

## "6-50-55" (115 in. W. B.)

.....	2-p	Roadster	\$1,385
.....	5-p	Spec. Tourer	1,245
.....	2-p	Bus. Coupe	1,295
.....	5-p	Coupe	1,395
.....	5-p	Sedan DeLuxe	1,595

## "6-54-E" (118-138 in. W. B.)

.....	4-p	Roadster	2,385
.....	4-p	Tourer	1,985
.....	4-p	Sport	2,285
.....	7-p	Tourer	2,285
.....	3-p	Cabriolet	2,750

## "4-75-E" (128 in. W. B.)

"Custom Built"			
.....	2-p	Speedster	3,485
.....	3-p	Sport	3,285
.....	4-p	Tourer	2,985

## "8-88" (138 in. W. B.)

.....	4-p	Roadster	2,750
.....	5-p	Sport	2,750
.....	5-p	Tourer	2,395
.....	7-p	Tourer	2,585
.....	2-p	Speedster	2,985
.....	3-p	Cabriolet	2,950
.....	5-p	Spec. Sedan	3,285
.....	7-p	Sedan (136-in. W. B.)	3,185
.....	5-p	Brougham	2,785

## ROLLS-ROYCE

## Chassis

††Manufacturers do not quote list prices.

## STANLEY "252"

3400	5-p	Phaeton	\$2,500
3800	5-p	Sedan	3,300

## STAR

.....	2-p	Roadster	\$525
.....	5-p	Touring	525
.....	2-p	Coupester	595
.....	2-p	Coupe	675
.....	5-p	Coach	695
.....	5-p	Sedan 4 d.	775

## STEARNS-KNIGHT

## "B" (4)

# Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL										Wheel Base (Inches)	Tire Size	Decimals-Balloons	Model and Make	Number of Cyls.	Bore and Stroke	Rated H.P.	Crankcase In-terleg. or Sep.	Piston Material	No. Main Bear.	Oiling System	Oil Cleaner?	Cooling System	Thermostat?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	REAR AXLE	BRAKES		Steering Gear—Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Apax	41	108	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75	30x4.75	75





# A Mighty Force - *and its Influence on Your Business*

By the end of this year, there will be a great multitude of 400,000 boosters for Lockheed Hydraulic Four-Wheel Brakes — 400,000 owners of cars equipped with this *one braking system*.

Four hundred thousand men and the additional hundreds of thousands who are their immediate families, will enthusiastically spread the story of Lockheed braking efficiency, convenience and negligible service cost.

The reaction of all America to such convincing and unsolicited salesmanship is certain to help dealers sell more Lockheed equipped cars.

Such nation-wide enthusiasm is a mighty, an irresistible merchandising force of which the manufacturers who make and the dealers who sell Lockheed equipped cars reap ever-increasing benefit.

HYDRAULIC BRAKE COMPANY  
5835 Russell Street      Detroit, Michigan

*The Answer*  
**LOCKHEED HYDRAULIC**  
**Four Wheel Brakes**

Ze-Jerk  
Zen-Zwith

Var-Varies  
X-Sleeve valve  
Y-Yes

Q-Quarter elliptic  
R-Rectifier  
S-Semi-elliptic  
Sep-Separate

Or-Cup  
W-Oil  
P-Pressure gun  
Pr-Pressure gun

I-F-Internal four wheels  
I-R-Internal rear wheels  
I-T-Three-quarter elliptic  
K-Cone

E-T-External transmission  
E-F-External  
F-Filter  
FV-Full floating

A-Axle  
B-F-Both  
C-Chain  
CH-Chain

(Continued on page 50)



Attendance first three days four thousand one hundred thirty one by actual check.

DON LEE  
Los Angeles, Calif.

We have had better than fifteen hundred people visit our show rooms since the announcement. Greatest attendance we have ever experienced in Baltimore. High-class engineer says it is greatest amount of automobile he has ever seen for the money.

EARLE WILLIAMS  
Cadillac Co. of Baltimore, Inc.  
Baltimore, Md.

Public very enthusiastic. Show-room crowded. Favorable comment one hundred per cent.

HENDERSON ROLLER CADILLAC CO.  
Youngstown, Ohio

All who have seen the car express great admiration for its beautiful appearance. Our organization much enthused over each and every detail.

ENGINEERING & EQUIPMENT CO.  
Wheeling, W. Va.

Cars arrived ten o'clock this morning. Ten-thirty, Custom Suburban sold. Eleven-fifteen, seven-passenger Sedan gone. One-thirty, five-passenger Sedan gone. What do we do the rest of the month? Show-room full at nine tonight.

AHRENS & AHRENS  
Spokane, Wash.

New Cadillac has been very favorably received by public.

JONES MOTOR CAR CO.  
Richmond, Va.

New cars very enthusiastically received. All express surprise at quality of car at price.

H. J. MURCH  
Worcester, Mass.

You are certainly deserving great compliments on your magnificent new line of cars. I congratulate you.

JOHN H. HANSEN  
Cadillac Motor Car Co.  
Chicago Branch  
Chicago, Ill.

Wonderful results attend our showing of the new Cadillac. Ship us all the cars you can.

MABBETT MOTOR CAR CO.  
Rochester, N. Y.

Drove new seven-passenger Sedan up Lookout Mountain and Genesee altitude eight two six eight, average fifteen to thirty miles per hour, all on high. No decrease in power to top and motometer remained below center line all the way. Radiator practically cold at top. Four passengers. Gas mileage slightly over thirteen, using measured gallons. Performance beyond expectations regarding power, acceleration and cooling.

SCHWITTER  
Technical Representative at  
Denver, Colo.

New Cadillac models were put on display here Friday morning and created local interest far greater than has ever been accorded any other car. Actual sales up to Saturday night without demonstration, twenty.

H. M. KINNEE  
Buffalo Cadillac Corporation  
Buffalo, N. Y.

Would estimate that four hundred people have seen the new Cadillac and thirty received demonstrations. Entire organization much pleased with performance, riding qualities and general appearance.

SAMUEL S. SHARMAN  
Sharman Automobile Company  
Salt Lake City, Utah

More interest shown in the new Cadillac than any previous model since we have been distributors.

STANDARD AUTO CO.  
Louisville, Ky.

More interest being displayed in new Cadillac here than any previous models.

IKE HANLEY, INC.  
Huntington, W. Va.

Reception of the new Cadillac greatest ever experienced. Attendance exceeds any former showing of new models.

EARLE WILLIAMS  
Cadillac Co. of Baltimore, Inc.  
Baltimore, Md.

The public is manifesting more interest in the Cadillac today than at any time in past five years. To drive this new car creates an immediate desire to own it.

DRENNEN MOTOR CAR CO.  
Birmingham, Ala.

They came. They saw. They were conquered. Everyone is enthusiastic about the new Cadillac. The public is convinced that the new Cadillac is a far better car at a greatly reduced price.

D. S. KRUIDENIER  
Kruidenier Cadillac Co.  
Des Moines, Iowa

Mechanical improvements and beautiful new bodies in the new model Cadillacs have met with a

wonderful reception here. Extend heartiest congratulations.

BABBITT BROTHERS  
Phoenix, Ariz.

Wonderful reception accorded new Cadillac. Individual comments 100 per cent favorable.

STOCKELL MOTOR CAR CO.  
Nashville, Tenn.

Public very enthusiastic about new car. Hardly able to handle the number of people coming to see it.

WM. J. McALISTER  
McAlister Brothers  
Pittsburgh, Pa.

New Cadillac enthusiastically received by public and organization. The most common remark is, how can the Cadillac Company build such a fine car for the price?

MORRIS MOTOR CAR CO.  
Waterloo, Iowa

The Touring Car is a knockout, the Brougham a sensation, the Sedan a riot, the Suburban a wallop and the prices a home run smash with the bases full. Tremendous crowd, tremendous enthusiasm. San Francisco sends its congratulations and thanks to the manufacturers of this masterpiece.

F. W. PABST  
Don Lee  
San Francisco, Cal.

# More Telegrams from





The public, the dealers and the salesmen enthusiastic about the new line.

HARRY S. BURKE  
Burke Cadillac Co.  
Indianapolis, Ind.

Want to say again new Cadillac greatest automobile at greatest price ever put on the market. All we ask of the factory is to ship them fast.

R. R. PRICE  
Southern Motor Car Co.  
Memphis, Tenn.

New Cadillac cars have been received by public with greater enthusiasm than ever before. The greatest of all Cadillac cars seems to express their idea.

H. M. COVEY  
Covey Motor Car Co.  
Portland, Ore.

Dealers most enthusiastic confident can double business. Public heartily approve changes.

NAGELVOORT STEARNS  
CADILLAC COMPANY  
Seattle, Washington

The public has given the new Cadillac the most enthusiastic reception ever witnessed. Attendance at the showing of the new car has by far broken all previous records. Have booked a total of one hundred ninety three retail orders. Dealers who drove new cars home in varying distances up to four hundred miles report it to be without question the greatest performing automobile they have ever driven. Exceeds their fondest expectations. My firm conviction that this wonderful car coupled with the increased selling effort arising from the new spirit of enthusiasm in Cadillac will give you a greater volume than you have even dared to hope for. Please accept the thanks of this organization for this greatest of all cars.

CLAUDE NOLAN  
Jacksonville, Florida

New Cadillac line has created tremendous interest. Salesroom has been buzzing since early morning.

L. E. HORTON  
Northwestern Cadillac Co.  
Minneapolis, Minn.

Great enthusiasm. All dealers more anxious for automobiles than ever before at this season.

W. W. WOODARD  
Cadillac Motor Car Co. of Maine  
Portland, Me.

New models big success.

BROWN AND THOMAS AUTO-MOBILE CO.  
New Haven, Conn.

Public taking introduction of new car with great deal of enthusiasm. Attendance up to this time greater than at time of V-63 introduction.

R. W. COOK  
Cadillac Motor Car Co. Branch  
Philadelphia, Pa.

Public showing a great interest in new Cadillac.

CADILLAC MOWRY CO.  
Norfolk, Va.

Visitors at our showroom all very favorably impressed.

F. J. SMITH  
W. K. Henderson Smith Co.  
Shreveport, La.

Never before has every one been so enthusiastic with the showing of new Cadillac models.

A. G. LILLIBRIDGE  
The A. C. Swan Company  
Norwich, Conn.

Had a steady stream of visitors in Thursday, Friday and Saturday in spite of two days' rain. Most enthusiastic reception ever given Cadillac here.

EUGENE DAUTELL  
Towell Cadillac Co.  
Toledo, Ohio

Public highly enthusiastic. Steady stream in salesroom all day. Looks like big season to us with best car in the world.

GUS D. REVOL  
New Orleans, La.

Car enthusiastically received by all.

C. C. CLARK  
R. R. Hall Cadillac Co.  
Denver, Colo.

Reception new Cadillac equal to homage paid when Cadillac startled the world with the introduction of the V-type eight. In spite of bad weather Thursday and Friday several hundred people saw and rode in car. All marveled at its beauty and performance.

T. H. TOWELL  
Towell Cadillac Co.  
Cleveland, O.

Congratulations. The new car is all that is claimed for it. Emphatically the greatest Cadillac. Never before have so many people come to see a new model. A demonstration wins them completely. We see every indication of greater sales and increasing Cadillac leadership.

A. C. ROSE  
Brown Thomson & Co.  
Hartford, Conn.

Dealers and salesmen filled with enthusiasm after going over new line. Believe new Cadillac to be greatest value ever offered. Largest attendance for openings. All visitors very much impressed with new body appearance and the substantial reduction in price. We believe

twenty-six holds greater volume of business than any year previous.

H. A. PIKE  
Goldsboro Garage & Motor Transport Company  
Goldsboro, N. C.

Every prospect on seeing car desires immediate delivery.

JERRY DURYEA  
Jerry Duryea, Inc.  
Springfield, Mass.

People crowded our showrooms Thursday to view new model. Continued interest shown ever since. Dealers are very much pleased with car.

G. H. NORRIS  
Genesee Motor Car Co.  
Syracuse, N. Y.

Congratulations to Cadillac on development and production of the wonderful new Cadillac. Received with great enthusiasm and a general feeling that it contains Cadillac's highest ideals.

NORMAN C. LAWSON  
Pres. Cadillac Automobile Dealers Assn., Inc.  
New York City

The new car has had the greatest and most enthusiastic reception in our experience.

G. H. MILLER  
Miller Auto Sales Co.  
Rutland, Va.

Newport and its summer colony highly enthusiastic over new Cadillac. Heartiest congratulations.

H. LLOYD ROONEY  
Newport, R. I.

## Enthusiastic Dealers

# Mechanical Specifications of Current Passenger Car Models—Continued

(This list comprises cars distributed on a national basis)

MAKE AND MODEL										ENGINE										ELECTRICAL SYSTEM										REAR AXLE										BRAKES				Steering Gear—Type and Make		Rear Springs—Type and Length		Chassis Lubrication—Type and Make		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS			
Wheel Base (Inches)		Tire Size		Decimals-Balloons		Make and Model		Bore and Stroke		Rated H.P.		Piston Displacement		Valve Arrangement		Camshaft Drive		Crankcase In-terfer. or Sep.		Piston Material		No. Main Bear.		Oiling System		Oil Cleaner?		Cooling System		Thermostat?		Carburetor		Air Cleaner?		Ignition System		Generator and Starter Make		Clutch—Type and Make		Universal—Type and Make		Type and Make		Gear Ratio		Foot—Type and Location		Hand—Type and Location		4 Wheel Type (Optional)	
Locomobile..... Jr. 8	124	30x5.77	Own. Jr. 8-24x4	25.3	206	I	Ch.	Int.	Ch.	Int.	5	P K	F	Pu.	N	Str.	N	DeJo.	DeJo.	P.Spi.	Own.	m-Spi.	1/2 Own.	4.77 E-F	E-R	M	Ros.	S-55 1/2	Pr-Ze.	A-K—Atwater Kent																							
Locomobile..... 48	142	35x6.75	Own. .... 48-64 1/2x5 1/2	48.6	525	L	He.	Sep.	Ch.	Sep.	7	P F	F	Pu.	N	Bal.	N	DeJo.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	5.11	E-R	M	Ros.	S-55 1/2	Pr-Ze.	A-J—Auto-Lite																							
Marmen..... 74	130	32x6.20	Own. .... 74-63 3/4x5 1/2	33.8	340	L	He.	Sep.	Ch.	Sep.	3	P F	F	Pu.	N	Bal.	N	DeJo.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	5.11	E-R	M	Ros.	S-55 1/2	Pr-Ze.	A-J—Auto-Lite																							
McFarlan..... SV	127	32x6.20	Wis. .... Y 6-33x5	27.3	268	L	Ch.	Int.	Ch.	Int.	3	P F	F	Pu.	N	Ray.	N	Wes.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	4.90	E-F	E-T	H	Ros.	S-58 1/2	OW.	B-B—Brown & Beck																						
McFarlan..... TV	140	34x7.20	Own. .... TV 6-41x6	48.6	573	L	He.	Sep.	Ch.	Sep.	3	P F	F	Pu.	N	Ray.	N	Wes.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	4.90	E-F	E-T	H	Ros.	S-58 1/2	OW.	B-B—Brown & Beck																						
Mercer..... 6-117-132	128	32x6.20	Own. .... 6-63 3/4x5	33.8	331	L	He.	Sep.	Ch.	Sep.	3	P F	F	Pu.	N	Ray.	N	Wes.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	4.90	E-F	E-T	H	Ros.	S-58 1/2	OW.	B-B—Brown & Beck																						
Mercer..... 6-117-132	128	32x6.20	Own. .... 6-63 3/4x5	33.8	331	L	He.	Sep.	Ch.	Sep.	3	P F	F	Pu.	N	Ray.	N	Wes.	Wes.	D.Own.	Own.	m-Spi.	1/2 Own.	4.90	E-F	E-T	H	Ros.	S-58 1/2	OW.	B-B—Brown & Beck																						
Moon..... London	113	30x5.25	Con. .... 8R 6-33x4 1/2	27.3	242	L	Ch.	Int.	Ch.	Int.	4	P C	N	Pu.	N	Str.	N	DeJo.	DeJo.	P.B.K.B.	W-G.	m-Spi.	1/2 Own.	4.82	E-F	E-T	H	Ros.	S-54 1/2	CuBas	Bij-Bijur																						
Moon..... 6-113-127	113	30x5.25	Con. .... 7Z 6-33x4 1/2	27.3	242	L	Ch.	Int.	Ch.	Int.	4	P C	N	Pu.	N	Str.	N	DeJo.	DeJo.	P.B.K.B.	W-G.	m-Spi.	1/2 Own.	4.82	E-F	E-T	H	Ros.	S-54 1/2	CuBas	Bij-Bijur																						
Nash..... Advanced	121-127	32x6.00	Own. .... 161 6-31x5	25.4	249	L	He.	Int.	Ch.	Int.	3	P C	N	Pu.	N	Str.	N	DeJo.	DeJo.	P.B.K.B.	W-G.	m-Spi.	1/2 Own.	4.82	E-F	E-T	H	Ros.	S-54 1/2	CuBas	Bij-Bijur																						
Nash..... 6-112 1/2	112 1/2	31x5.25	Own. .... 131 6-31x4 1/2	23.4	207	L	Ch.	Sep.	B.	Ch.	Sep.	3	P C	N	Pu.	N	Str.	N	DeJo.	DeJo.	P.B.K.B.	W-G.	m-Spi.	1/2 Own.	4.82	E-F	E-T	H	Ros.	S-54 1/2	CuBas	Bij-Bijur																					
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NO. 6 OF A SERIES OF ADVERTISEMENTS EXPLAINING ARROW HEAD METHODS OF MANUFACTURE

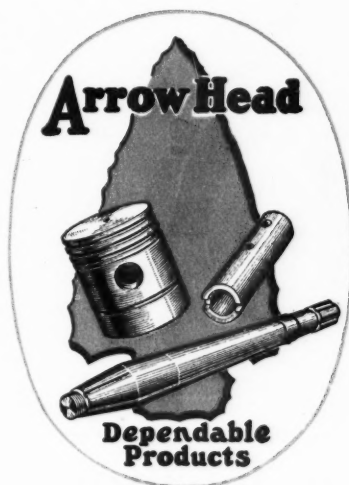
# Arrow Head



Balancing Arrow Head Pistons into sets

## Arrow Head Pistons are packed in precisely balanced sets

**A**LL Arrow Head Pistons in a set weigh the same—an essential requirement in an up-to-date, balanced motor. Each set of pistons is held to a rigid standard of roundness, diameter, alignment of holes, straightness of ring grooves, etc. Besides, each piston must balance every other piston of its set *in weight*. A set of Arrow Head Pistons must be in perfect equipoise—any one balancing any other; any two, any other two—before they are sealed in their carton. A motor equipped with them has a minimum chance to develop vibration. It pays to install a *complete* set. Buy a sealed, labelled carton.



Each genuine Arrow Head part is marked with an Arrow Head

Send for our new booklet giving practical hints on installing replacements and outlining Ten Profitable Opportunities for Motor Repair men. It is a valuable book and well worth sending for. A post card brings it—FREE. Write now.



ARROW HEAD STEEL PRODUCTS COMPANY  
Minneapolis, Minnesota

**Pistons • Piston Pins • Axle and Drive Shafts**

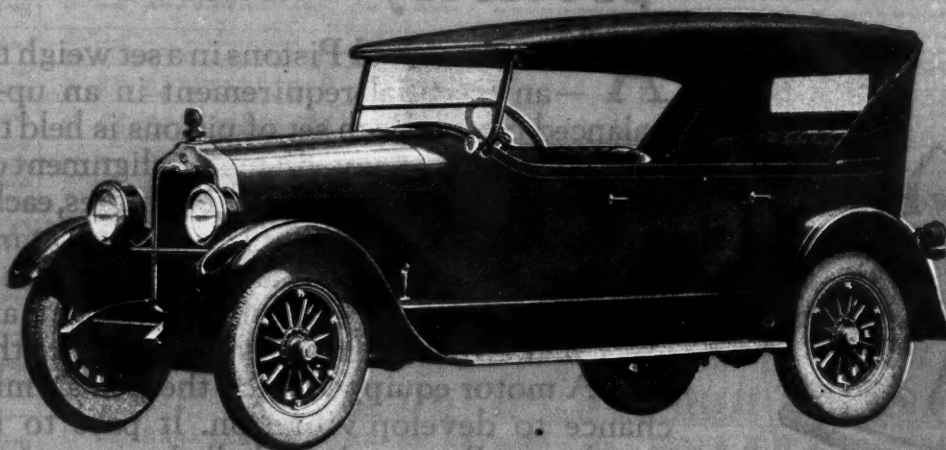
25  
 Zen-Zenith  
 Ze-Jerk  
 Var-Varies  
 V-Sleeve valve  
 Y-Yes  
 Quarter elliptic  
 Q-Rectifier  
 R-Semi-elliptic  
 Sep-Separate  
 W-Oil cups with wick feed  
 Single plate  
 Pressure gun  
 Oil cups  
 R-Internal four wheels  
 I-R-Internal rear wheels  
 J-Three-quarter elliptic  
 K-Cone  
 External rear wheels  
 External transmission  
 F-Filter  
 Full floating  
 Aluminum  
 Semi-steel  
 Both four wheels  
 Chain

# The Enviably of PEER

PEERLESS has *always* been a good car. And today not only are Peerless cars better than ever, but the Peerless Company itself occupies a most enviable position financially.

Not one cent of bank loans stands against the Peerless name. There's not a dollar of bonded indebtedness.

## The Enviably Position of Peerless Dealers who build



*Dealers looking for a permanent profitable connection* in towns where Peerless is not represented, will do well to get in touch with us

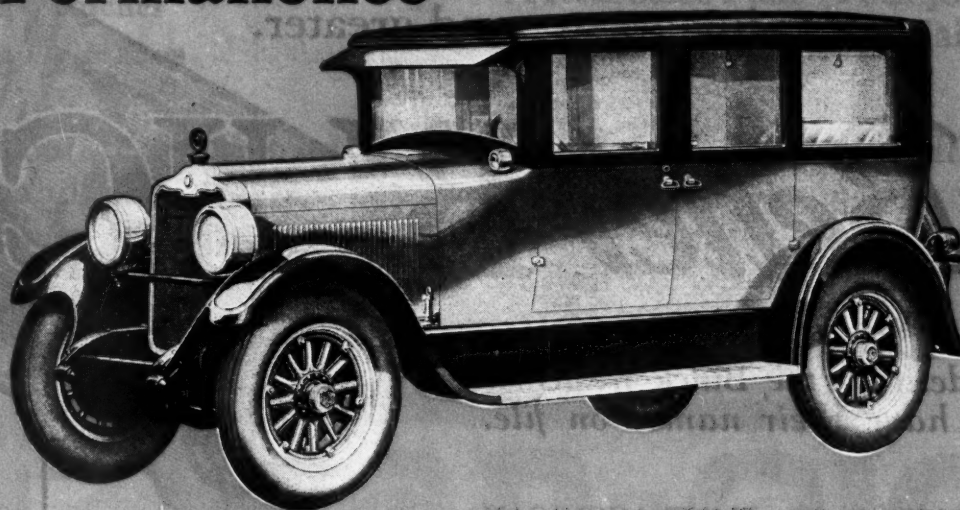
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# Financial Position LESS

In the last three months practically 100 strong, well established distributors and dealers have signed the Peerless contract. In all its 24 years of automobile manufacture, Peerless has never been going so strong. Never before have Peerless cars stood out so much from the crowd. And Peerless has *always* been a good car.

means a lot to Far-Sighted  
for Permanence



at once. Developments in the near future will make the Peerless Franchise even more interesting than ever. Write, wire or phone.

THE PEERLESS MOTOR CAR COMPANY, CLEVELAND, OHIO

*The Equipoised Peerless Eight and the Superb Peerless Six*



# *Real* Sedans at "Coach" Prices

The new Buick 4-door and 2-door Sedans are demonstrating in a striking way the exceptional value in the Better Buick.

They are another reason why Buick sales are growing greater and greater.

## *the Better* BUICK



Those desiring the Buick franchise should have their names on file.

BUICK MOTOR CO., FLINT, MICHIGAN  
Division of General Motors Corporation  
Pioneer Builders of Valve-in-Head Motor Cars  
Branches in All Principal Cities  
Dealers Everywhere

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM



# 4 reasons

Why you can increase your fan belt sales and profits with the Farran-oid Line—

*The completeness of the Farran-oid line simplifies stocking and hastens turnover*

Fan Belts

Red Radiator Hose

Black Radiator Hose

Garage Air Hose (Red)

Car Washing Hose

Door Checks

Tire Flaps

Blowout Patches

Tube Patches

Ford Floor Mats

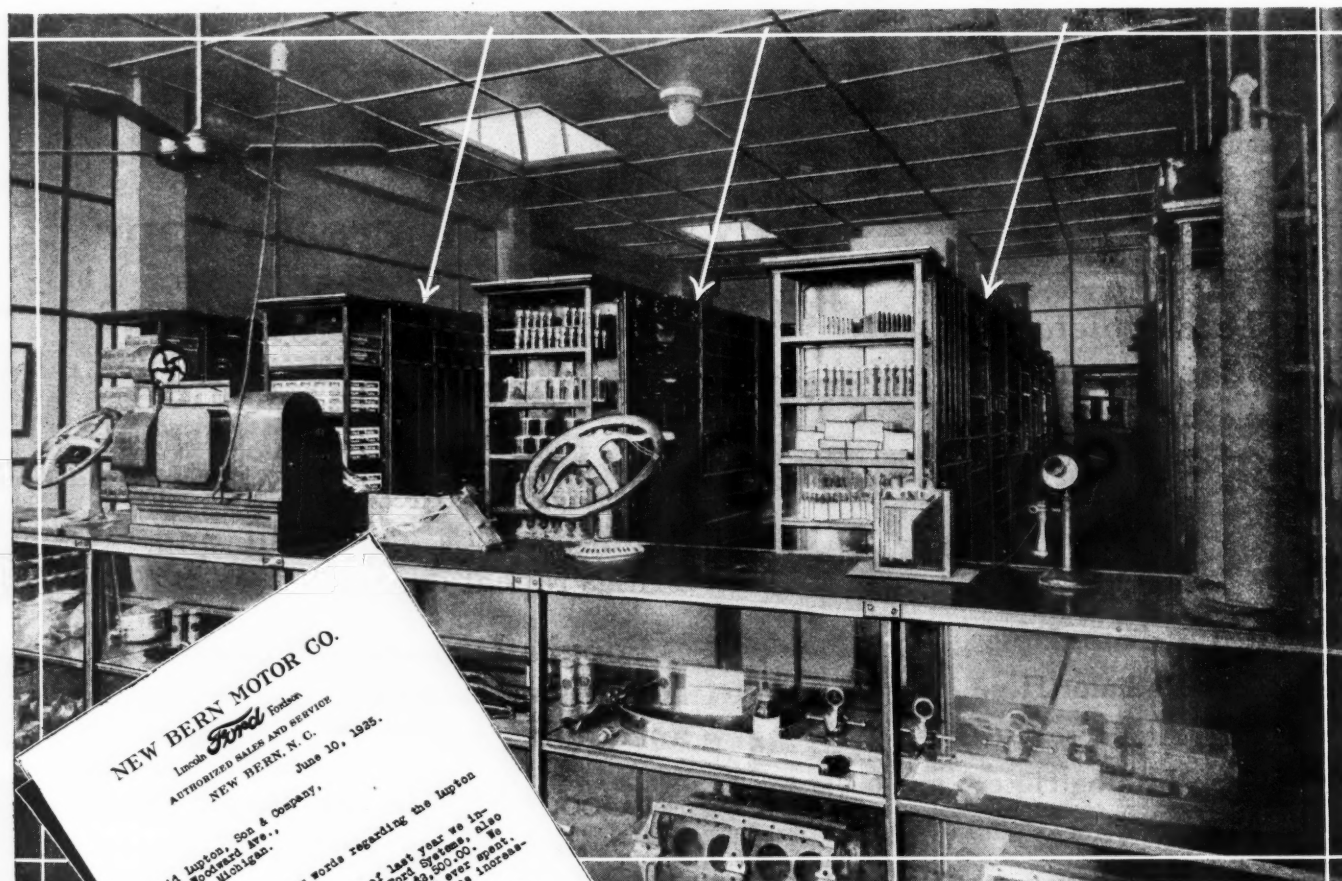
- 1 —A Better Product—the highest quality builds good-will and brings repeat orders.
- 2 —A Popular Demand—consistent advertising creates it—performance holds it.
- 3 —A Good Margin of Profit—fully in keeping with present day costs of doing business.
- 4 —A Real Sales Plan—Your jobber will gladly call and explain it.


Round out the advantages of Farran-oid Fan Belts by handling the whole Farran-oid Line. The same high principles that have swept our Fan Belt into leadership are embodied in every product bearing the name.

THE FARRAN-OID COMPANY, Akron, Ohio

# Farran-oid Products

# LUPTON AUTO PARTS STORAGE\*



NEW BERN MOTOR CO.  
 Lincoln  Ford  
 2631 Woodward Ave.,  
 Detroit, Michigan.  
 AUTHORIZED SALES AND SERVICE  
 NEW BERN, N. C.  
 June 10, 1925.

David Lupton, Son & Company,  
 System Equipment.  
 Gentlemen:-

Just a few words regarding the Lupton  
 System. On September 1st of last year we in-  
 stalled one of your 50-unit Ford Systems. Also  
 installed a counter, which cost us \$2,500.00. We  
 feel like it was the best money we ever spent.  
 Since that time our parts business has increas-  
 ed 50% on sales.

We highly recommend your System to  
 every Ford dealer as we do not see how he can  
 get along without one.

Yours very truly,  
 NEW BERN MOTOR COMPANY  
 by *W. C. Hagood*

WCH/2.

Lupton Auto Parts Storage Systems save time and floor space, promote display, systematically store parts, improve service, and increase sales.

No wonder Mr. Hagood says:  
**"We highly recommend  
 your SYSTEM"**

New Bern  
 bought  
 \*LAPS and  
 Lupton  
 Display  
 Counter

—and they don't see now  
 how any Ford dealer can  
 get along without them.

**50%** increase in parts sales! That's the return  
 the New Bern Motor Company got from  
 their investment in a LAPS System and Lupton Dis-  
 play Counter!

Such an increase in profits is the result you can  
 reasonably expect from installing this highly effi-  
 cient parts storage and display equipment.

If you are interested in a 50% increase on your  
 parts business, write us on your letterhead for full  
 information.

Sold by Jobbers Everywhere

**DAVID LUPTON'S SONS COMPANY**

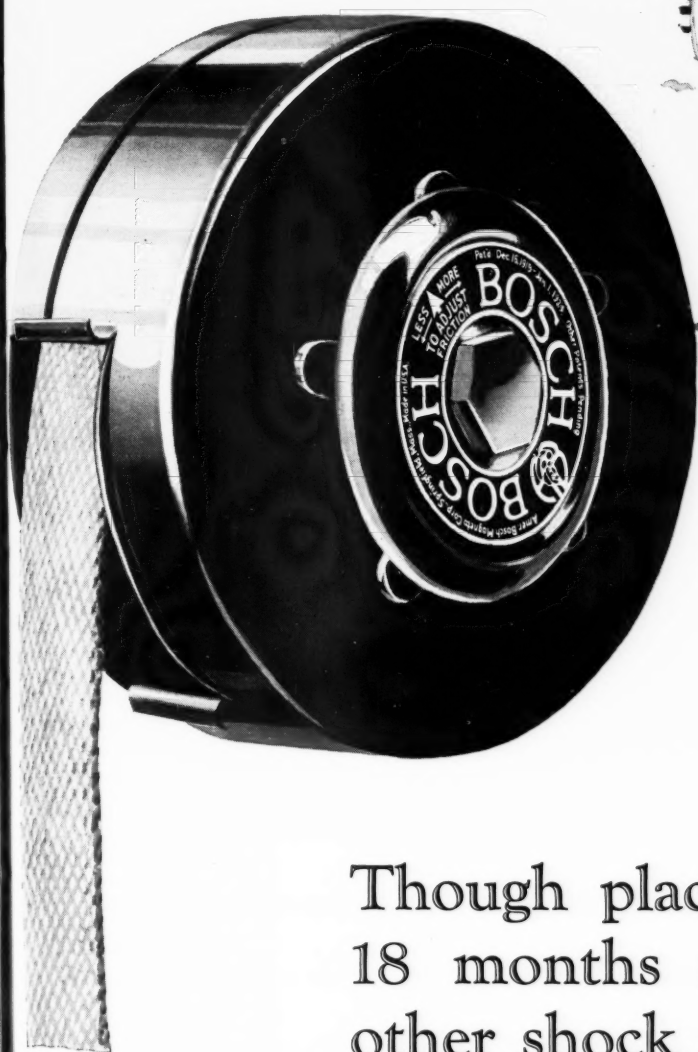
Main Office and Factory—Philadelphia

2631 Woodward Avenue, DETROIT





*Smooths the Road*



Here's a real business builder. It's a quality product through and through—priced right, widely advertised and wonderfully efficient.

Though placed on the market only 18 months ago, it has outsold all other shock absorbers but one—and its sales are mounting rapidly. Make the Bosch your leader—it pays.

Best for Balloon  
Tires, Too



For Fords (3-point control set, complete) \$16.50 per set  
Medium cars \$15 per pair. Heavy cars \$20 per pair

**BOSCH**  
**SHOCK ABSORBER**

# Now for

Only \$16<sup>50</sup>  
for full set



TRADE MARK





# Fords!

## 3-Point Control Set of Bosch Shock Absorbers

**T**HE 3-Point Control Set—the latest Bosch achievement—is the ideal shock absorber equipment for Fords. It provides spring control at the exact spots where needed, and makes a wonderful improvement in a Ford's riding qualities.

3-point control—one shock absorber at the center front, and two at the rear—is undoubtedly the proper thing for Fords. Single units at both front and rear won't do, for no matter how efficiently they check the spring rebounds, they can't prevent rocking and swaying. With two Bosch Shock Absorbers at the rear, and one at the front, there is absolutely no rocking or swaying—and the car rides exceptionally well.

Remember, the shock absorbers in the new 3-point control set are standard Bosch units—designed, built and finished exactly the same as those supplied

for the most expensive cars. And yet this new Ford set, including all the necessary fitters and attachments, sells at only **\$16.50** (\$22.75 in Canada).

Think of it! A full set of Bosch Shock Absorbers—the most efficient rebound controller on the market—now costs little more than a spare tire. It is a cinch to sell Ford owners now. Even dealers in small towns should sell a half dozen sets a day.

The Bosch 3-point control set is easy to install—easy to demonstrate—easy to sell. Get a stock and start selling NOW. The nearest Bosch Branch will fill your order promptly.

### AMERICAN BOSCH MAGNETO CORPORATION

*Main Office and Works:* Springfield, Mass.

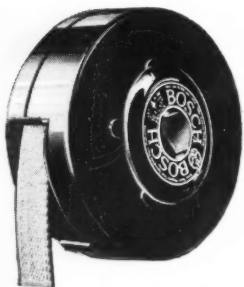
*Branches:*

New York Chicago Detroit San Francisco

# Profit Makers!



Electric  
Windshield  
Wiper



Shock Absorber



Spark Plug



Ignition Coil

## The BOSCH Long Line of Automotive Necessities

Here's a complete line of Quality accessories—all made by one firm. It's no longer necessary to deal with one company selling shock absorbers, another selling spark plugs, etc. If you handle the Bosch Long Line, you have the selling rights to 10 popular accessories—every one high grade, thoroughly dependable, moderately priced and a real necessity.

You have the Bosch reputation and prestige to back you up, Bosch advertising and dealer helps to aid you in selling, and the liberal Bosch discounts to assure good profits.

Furthermore, there are over 2500 official Bosch Representatives throughout the world to keep Bosch Products properly serviced.

### Ask About the Bosch Dealer Franchise

You can profit still more by becoming an Official Bosch Dealer. The requirements are simple—the benefits many. Some of the advantages you would get are:—

Special discounts on all Bosch material.  
Greater profits through increased sales.  
Personal assistance from Bosch salesmen.  
New markets, and added prestige locally.  
Reference books, sales literature, etc.  
Sales promotion and advertising service.

For full particulars, fill out coupon and mail TODAY.

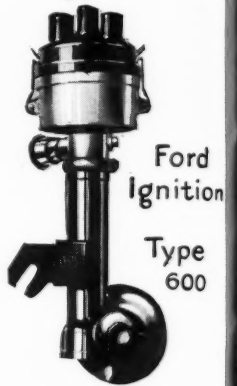
### American Bosch Magneto Corporation

Main Office and Works: Springfield Mass.

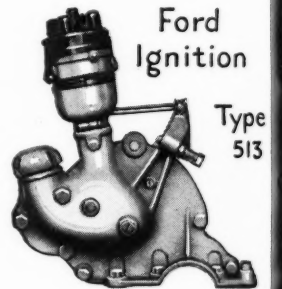
#### Branches

17-23 W. 60th St., New York  
3737 Michigan Ave., Chicago

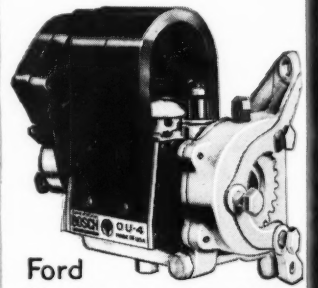
89-95 Hancock Ave. W., Detroit  
1262 Post Street, San Francisco



Ford  
Ignition  
Type  
600



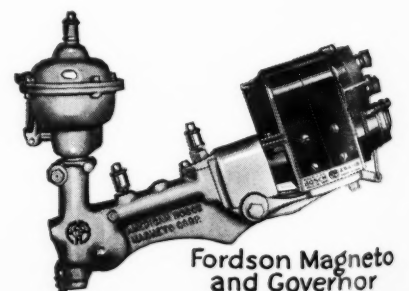
Ford  
Ignition  
Type  
513



Ford  
Ignition  
Magneto  
Fitting



Fordson  
Governor



Fordson Magneto  
and Governor

## Mail This Coupon TODAY

### AMERICAN BOSCH MAGNETO CORPORATION

Send me full particulars about:

- |   |  |
|---|--|
| <input type="checkbox"/> Complete line    | <input type="checkbox"/> Electric Horn             |
| <input type="checkbox"/> Shock Absorber   | <input type="checkbox"/> Ford Ignition Systems     |
| <input type="checkbox"/> Windshield Wiper | <input type="checkbox"/> Fordson Ignition System   |
| <input type="checkbox"/> Spark Plug       | <input type="checkbox"/> Fordson Throttle Governor |
|   | <input type="checkbox"/> Bosch Dealer Proposition  |

Ship me the following units at quantity discount C.O.D.—

Firm Name.....  
Street Address..... City..... State.....  
Date..... Signature.....



# Gaining in Sales Each Year!

## *The Easiest Way To Fix Punctures*



## *And As Easy to Sell As It Is to Use*

The Shaler Vulcanizer has been advertised for so many years that most motorists know about it and are ready to buy from the first dealer who says, "Here it is."

The dealer who keeps it out in front and makes it easy to buy, is the dealer who gets the business.

We are always glad to furnish dealers with attractive display material to tie up with our big national advertising in publications like The Saturday Evening Post. Send for it today.

Shaler sales for 1925 already show a 30% increase over last year. This in spite of the fact that 1925 has not been so good for many manufacturers—especially in the automotive field.

And now, with balloon tires as standard equipment, next year is certain to see a big increase in tire repair work, which will mean a corresponding increase in the use of Shaler Vulcanizers by motorists.

## *Every Sale Brings Repeat Sales*

Motorists do not go back to the old-fashioned way of sticking on patches after they have tried the Shaler. They become constant repeat customers for Shaler Patch-&-Heat Units.

**C. A. SHALER CO., Waupun, Wisconsin, U. S. A.**

*Oldest and Largest Manufacturers of  
Tire Repair Equipment in the World*



# SHALER



1/2-Inch  
Heavy Duty  
Electric Drill  
\$60.00

## Accepted and Recommended By the Automotive Industry

These well-known companies are just a few of the prominent motor car, truck, body and accessory manufacturers who, for many years, have accepted "Van Dorn" Portable Electric Drills as practically standard equipment in their production work.

Many of them go still further to insure the best service to users of their products:—They recommend to their service stations that "Van Dorn" Drills be used in servicing motor cars and trucks of their man-

ufacture—a wonderful tribute to "Van Dorn" quality.

### More Power Per Pound and More Power Per Dollar

of first cost is what service stations Need and Get from "Van Dorn" Drills to properly perform the increasingly hard work, such as, truck repairs, driving of stiff cylinder hones, etc.

They need dray horses and not ponies. They Get in "Van Dorn" Drills greater strength, power and endurance than was heretofore considered necessary in garage tools.

Send for handsome new 48 page catalog or ask our nearest jobber for a demonstration.

**The Van Dorn Electric Tool Company**  
Makers of Portable Electric Drilling, Reaming and Grinding Machines  
Cleveland, Ohio

#### SALES AND SERVICE BRANCHES

Atlanta  
Boston  
Buffalo

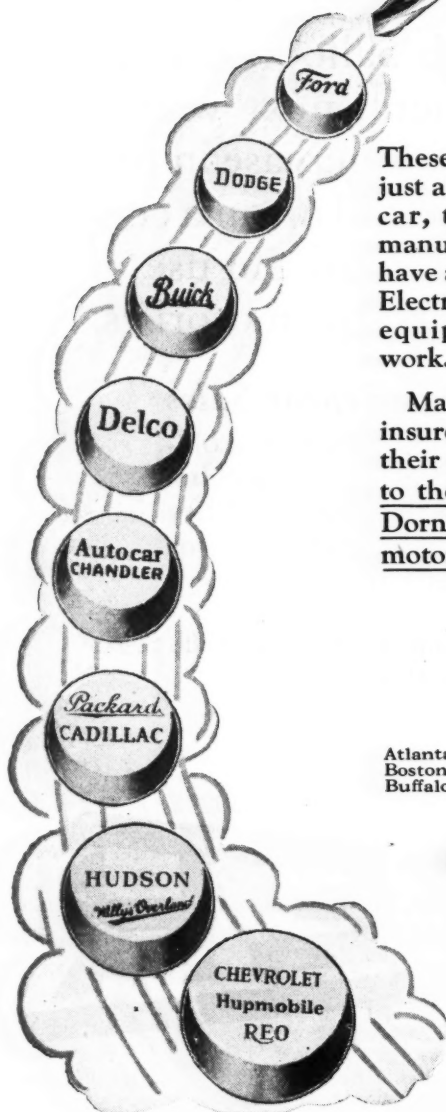
Chicago  
Cincinnati  
Detroit

Kansas City  
Los Angeles  
New York

Philadelphia  
Pittsburgh  
Richmond

St. Louis  
St. Paul  
Salt Lake City

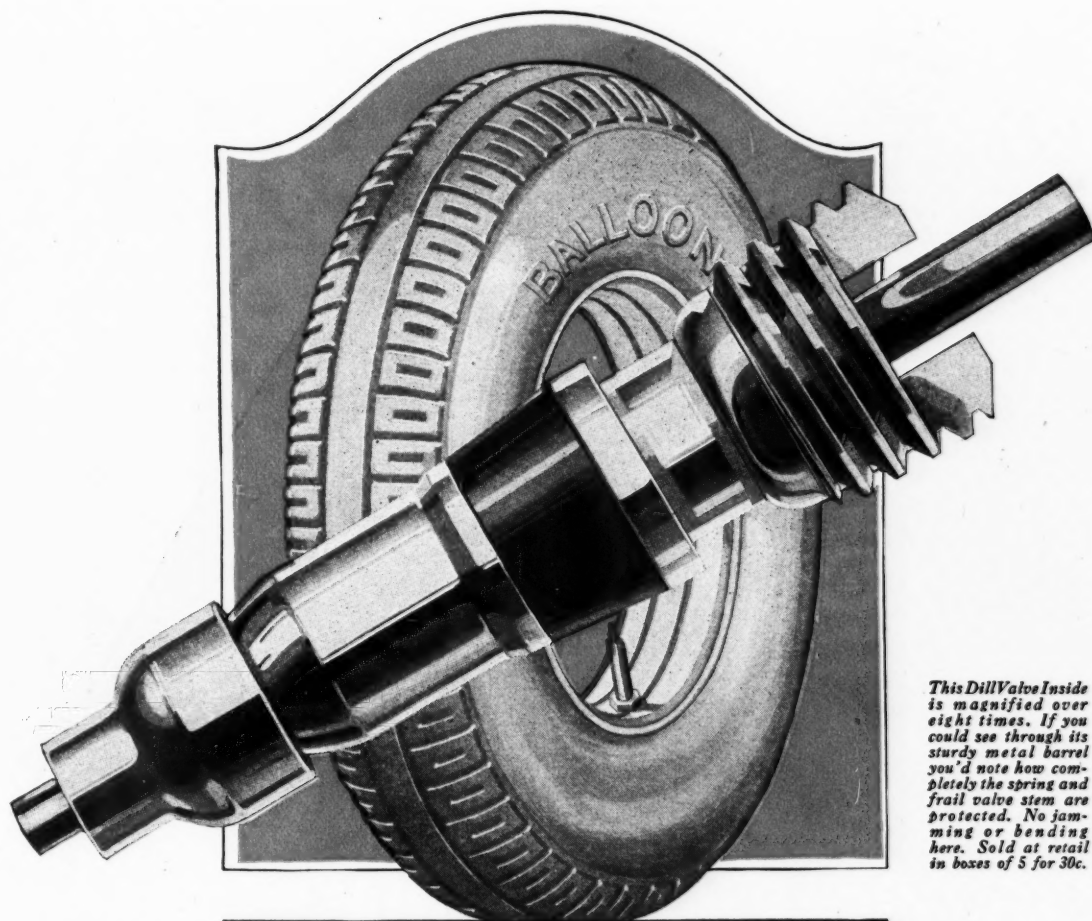
San Francisco  
Seattle  
Toronto



# "Van Dorn"

## ELECTRIC DRILLS





*This Dill Valve Inside is magnified over eight times. If you could see through its sturdy metal barrel you'd note how completely the spring and frail valve stem are protected. No jamming or bending here. Sold at retail in boxes of 5 for 30c.*

## Balloon Tire Users are Asking for Dill Valve Insides



*This display stand keeps your stock in an attractive and convenient manner and it is another salesman for you.*

THE Dill Valve-Inside is not the result of a hurried endeavor to produce something new or different. It was not offered for re-sale until lengthy tests had been made both in our own laboratories and by such tire companies as Good-year and Firestone. Nor was it offered for sale until it had been definitely standardized by The Tire & Rim Association.

The Dill Valve-Inside is different and more effective because its valve stem and spring are protected by a sturdy metal barrel. There can be no bending or jamming. This is especially important on balloon tires, where a few pounds loss of air makes a lot of difference in the service users get.

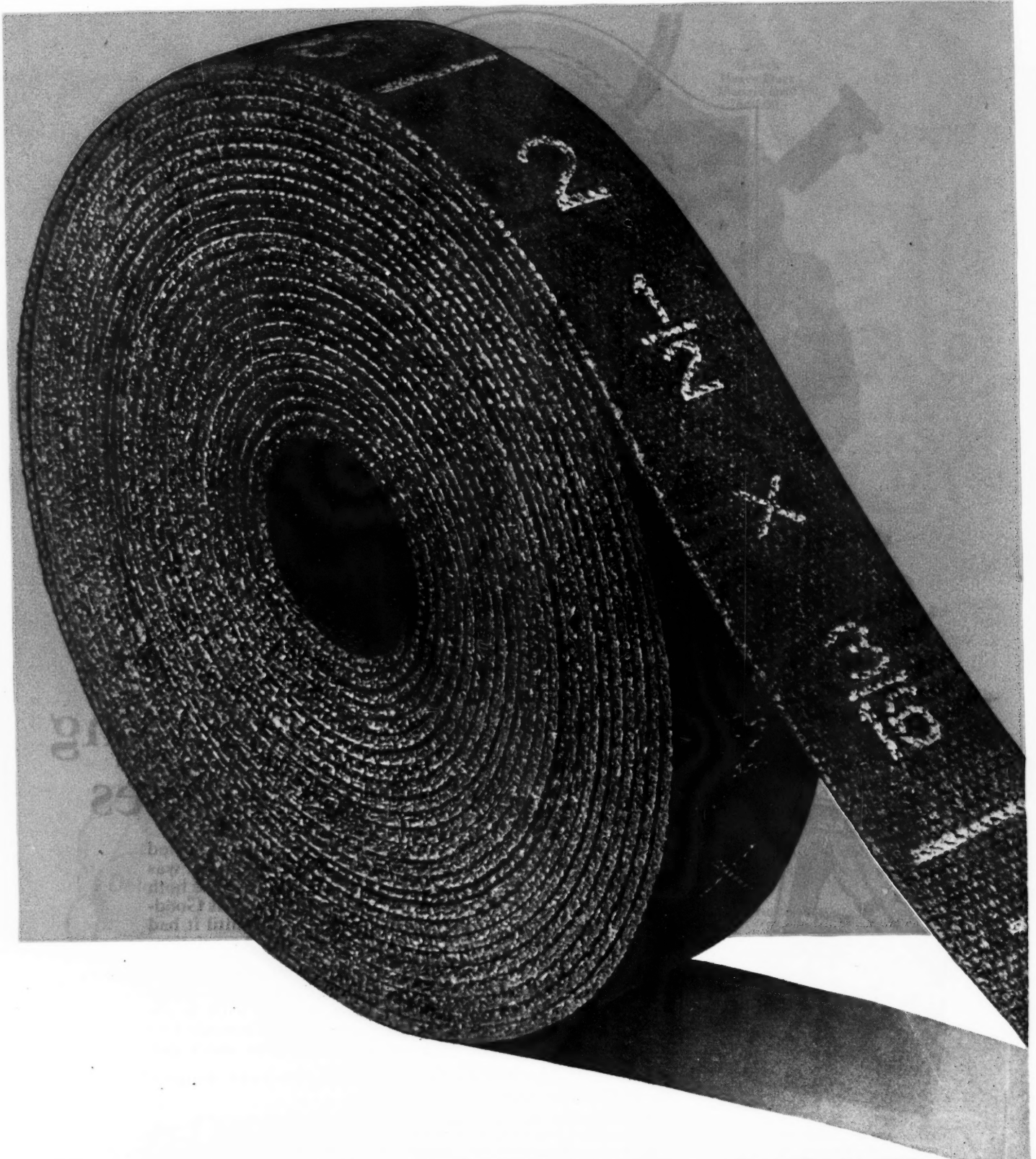
Put a Dill Valve Inside Display Stand on *your* counter. Your jobber can supply you.

*[This Valve Inside is one of the famous Dill Line of standard tire valves and valve parts of which the Dill Instant-On—dust and valve cap combined—is one.]*

THE DILL MANUFACTURING CO., Cleveland, O.  
Manufactured in Canada by The Dill Manufacturing Company of Canada Ltd., Toronto

# DILL

## Standard Tire Valves and Valve Parts



# MULTIBESTOS

BRAKE LINING



# PROFITS

**YOU** profit *well* when you handle Multibestos. Not only on your *regular* run of relining jobs, but also in *additional* jobs which the effective Multibestos Advertising backed up by the liberal line of Multibestos DEALER HELPS bring to your shop.

**MULTIBESTOS COMPANY  
WALPOLE, MASS., U. S. A.**

Branches: NEW YORK CHICAGO DETROIT NASHVILLE

**A MULTIBESTOS PRODUCT FOR EVERY  
BRAKE AND CLUTCH LINING NEED**

Multibestos Brake Lining

TAXITRUX Brake Lining

"229" Transmission Lining for Ford Cars

SPECIAL Transmission Lining for Ford Cars

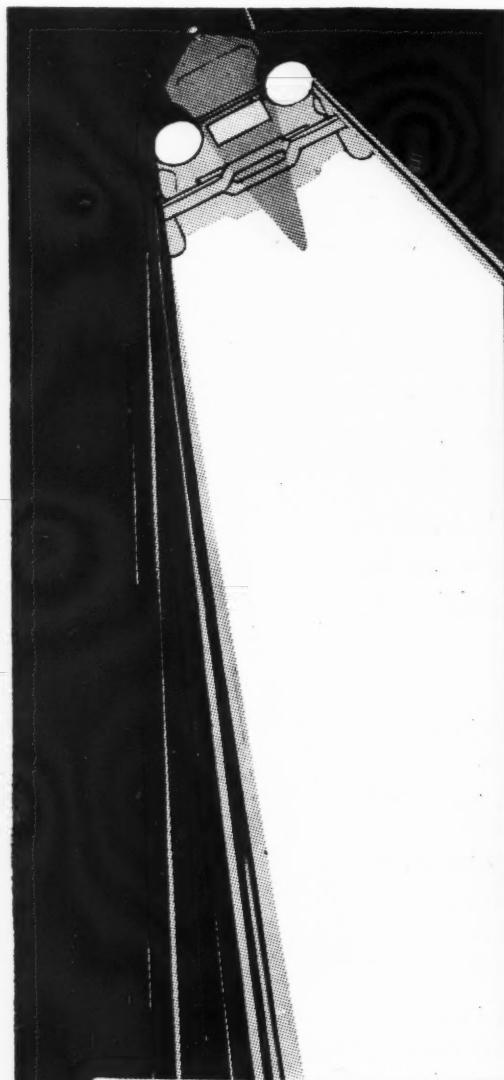
NO-WIRE Transmission Lining for Ford Cars

Lined BRAKE SHOES for Ford Cars

FIBRE Transmission Lining for Ford Trucks

Multibestos CLUTCH Linings





**From every merchandising viewpoint flatlite is a perfect accessory—**

**POINT 1** Every car owner needs the kind of light that flatlites give. This means the widest possible market that any accessory can enjoy.

**POINT 2** The two ways in which flatlites are sold take care of every car owner's requirements. If his present headlamps are good—you sell him flatlite reflectors. If he needs new headlamps—you sell him flatlite headlamps.

**POINT 3** flatlites are legal everywhere and proved in service, flatlite reflectors are in use everywhere. This proves car-owner acceptance yet leaves a big market still to be supplied.

**POINT 4** flatlites are easy to stock, easy to sell and easy to install. Three models of reflectors in two sizes supply all headlamps. Four models of flatlite headlamps fit all cars. flatlite reflectors go in right over the old reflectors, plain glass (furnished) replacing patent lenses.

flatlites sell with one simple demonstration to practically every prospect and a flatlite prospect is anybody who owns a car not already equipped to give the kind of light that flatlites give.

**POINT 5** flatlites have no known sales resistance. The low price of flatlites is usually a surprise to car owners, and this, balanced against what they bring in comfort, safety and freedom from legal difficulties, makes it quickly apparent that for sheer money's worth, flatlites have no equal in the accessory field.

✓— and flatlites sell with one simple demonstration to any car owner whose car is not now equipped to give the kind of light that flatlites give.

S. X. CALLAHAN

H. H. HURD

**S. X. CALLAHAN**  
EVERYTHING ELECTRICAL FOR THE AUTOMOBILE  
SAN ANTONIO TEXAS

**'WE FIX IT'**

August 15, 1925

American Flatlite Co.,  
Cincinnati, Ohio.

Dear Mr. Pim:

(Atten. Mr. Pim)

The photos you sent us, we received and they will help us in our sales work.

I would like to say that when the State of Texas adopted the new headlight law, we anticipated that we would like to be appointed as an official station, believing that it was of such importance that we could render to our patrons lighting service in addition to our other departments.

We started with one chart, and the business has increased to such an extent that we are operating at this time almost continually five complete testing charts or stations in this plant.

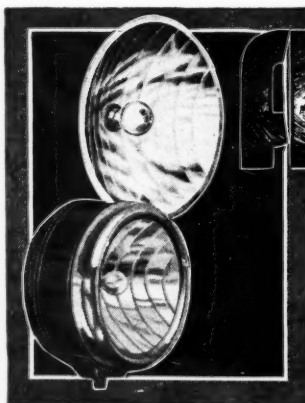
It might interest you to know that our campaign to sell road illumination to the motoring public has been so effective that our customers whose cars are already equipped with legal lenses have purchased more Flatlite Reflectors than those customers who have no legal devices whatever.

We trust that you will rush us the advertising matter we wired for today.

Very truly yours,

*S. X. Callahan*

**flatlites bring daytime safety to nighttime driving**



**Flatlite**

**REFLECTORS**  
for replacement in any headlamp  
**HEADLAMPS**  
to fit all cars

Write us for particulars.

Department A

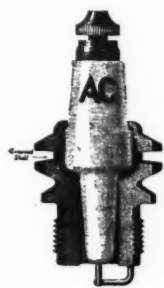
**THE AMERICAN FLATLITE CO.**  
Reading Road at Dandridge Street  
Cincinnati, Ohio





## What AC Means to the Dealer

### New AC Spark Plugs



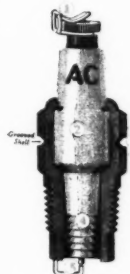
A new design, new alloy for sparking points, new electrically fused Kyanite insulator core and a new glaze.

AC Carbon-proof Plugs are also made in all sizes.

The demand for AC Spark Plugs is assured through their use as factory equipment on the following cars:

Ajax	Davis	Nash
Apperson	Dodge	Oakland
Buick	Brothers	Oldsmobile
Cadillac	Durant	Paige
Case	Essex	Star
Chandler	Flint	Velie
Chevrolet	Hudson	Westcott
Chrysler	Hupmobile	Wills Sainte
Cleveland	Kissel	Claire
	Marmon	

### New AC 1075 for Fords



The special features of the AC 1075 make it the most desirable plug for Fords. Dealers are building a big and profitable business by emphasizing these features in making sales:

- 1 Spring Terminal Clip
  - 2 Heavy Body Porcelain
  - 3 Hexagon of extra length permits easy and positive application of spark plug wrench
  - 4 High Temperature Fins—Patented carbon-proof Porcelain
  - 5 Drip electrode forms natural Oil Drain
- Made in both one and two-piece design.

**DEALERS**  
who carry AC  
products can  
build a profit-  
able business.

The demand is  
assured because  
of their use as  
car equipment.

They are backed  
by strong adver-  
tising.

AC Spark Plug Company, FLINT, Michigan

Makers of AC Spark Plugs—AC Speedometers  
—AC Air Cleaners

AC-SPHINX  
Birmingham  
ENGLAND

AC-OLEO  
Levallois-Perret  
FRANCE

### AC Speedometers



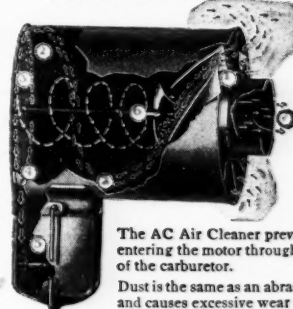
#### The Model for Fords

There is proof of the quality of AC Speedometers in the fact that they are used as original factory equipment on Buick, Cadillac, Chandler, Chevrolet, Chrysler, Gray, Oakland, Oldsmobile, Peerless and G.M.C. trucks.

The AC Speedometer for Fords is of the same quality as furnished the above manufacturers for their original factory equipment. The AC Direct Drive does away with the troublesome swivel joint and insures continuously satisfactory service.

Packed complete with all attachments.

### AC Air Cleaners



The AC Air Cleaner prevents dust from entering the motor through the air intake of the carburetor.

Dust is the same as an abrasive compound and causes excessive wear on all the motor's moving parts.

AC Air Cleaners are original factory equipment on the 1926 models of Nash, Buick and Oakland.

Installation is easy as it connects directly to the carburetor. Once installed it requires no attention as there are no moving parts to get out of order. Packed complete with all attachments.

Models are now ready for Chevrolet, Chrysler Four, Dodge Bros., Ford, Maxwell, Oldsmobile, Star, Studebaker, as well as the 1925 and earlier models of Buick, Nash and Oakland.

# Wagner-Lockheed Service Franchises

THE Hydraulic Brake Company, owning and controlling the patents of Lockheed four-wheel hydraulic brakes, has placed the servicing and distribution of replacement parts in the hands of the Wagner Electric Corporation of St. Louis. The servicing of these brakes will be handled through regular Wagner service stations.

Wagner service is divided into twenty-four territories throughout the country, and a factory representative has complete charge of his territory. He is fully empowered to render final decisions. This system eliminates all red tape and home office delays. Therefore, if you are interested in the *Lockheed franchise*, either write or visit the nearest of the twenty-four factory branches listed below. This coupon below makes it easy if you prefer to write.

There are also a few service territories open for Wagner Starting-Lighting-Ignition. If you are interested our nearest branch will be glad to go into details with you.

## WAGNER ELECTRIC CORPORATION

Saint Louis, Missouri

### Wagner Service Branches:

Atlanta, Ga. 145 W. Peachtree Street	Cleveland, Ohio 1412 East 25th Street	Los Angeles, Calif. 1320 S. Grand Avenue	Philadelphia, Pa. 1720-26 Callowhill Street
Baltimore, Md. 2018 N. Charles Street	Dallas, Texas 1916 Canton Street	Memphis, Tenn. 1116 Union Avenue	Pittsburgh, Pa. 4909 Liberty Avenue
Boston, Mass. 342 Newbury Street	Denver, Colo. 1633 Tremont Street	Milwaukee, Wis. 501 Broadway	Portland, Oregon 327 Flanders Street
Buffalo, New York 769 Main Street	Detroit, Michigan 5919 Woodward Avenue	Minneapolis, Minn. 1310 Nicollet Avenue	San Francisco, Calif. 457 Ninth Street
Chicago, Ill. 918 S. Michigan Avenue	Indianapolis, Ind. 922 N. Pennsylvania St.	New York City, N. Y. 321 West 54th Street	Seattle, Washington 538 First Avenue, South
Cincinnati, Ohio 20 East Ninth Street	Kansas City, Missouri 905 East 15th Street	Omaha, Nebr. 2212 Harney Street	St. Louis, Missouri 3029 Locust Street
	Toronto, Canada, 217 Dundas Street, East		

### Lockheed Four-Wheel Hydraulic Brakes are installed on the following cars:

PASSENGER CARS:		
CHRYSLER SIX	STEARNS	HUFFMAN
CHRYSLER FOUR	CASE	LEXINGTON
HUPMOBILE EIGHT	COLUMBIA	PEERLESS SIX
JORDAN SIX	CHALMERS	STUTZ
JORDAN EIGHT	ROAMER	WILLS STE. CLAIRE
FRONTENAC	FLINT	VELIE
MACFARLAN	KISSEL	STERLING KNIGHT
DELLING STEAMER	PAIGE	WESTCOTT
STANLEY STEAMER	JEWETT	ELCAR
DAVIS	CUNNINGHAM	DUPONT
PEERLESS EIGHT	DUESENBERG	METEOR
MOON	BALBOA	DIANA

#### MOTOR TRUCKS: MORELAND GARFORD

The following axle companies are licensed to equip with Lockheed Hydraulic Four-Wheel Brakes:

COLUMBIA SALISBURY FLINT MOTOR TIMKEN

### WAGNER ELECTRIC CORPORATION

MA-1420-12

St. Louis, Missouri

You may send me without obligation on my part, information on the following:

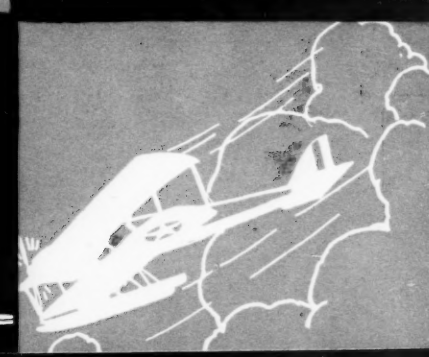
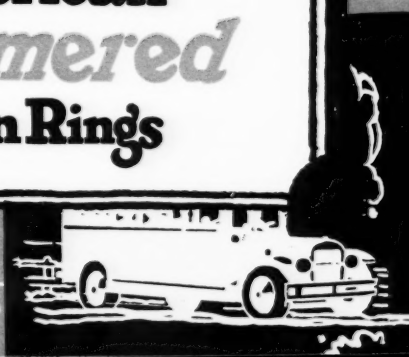
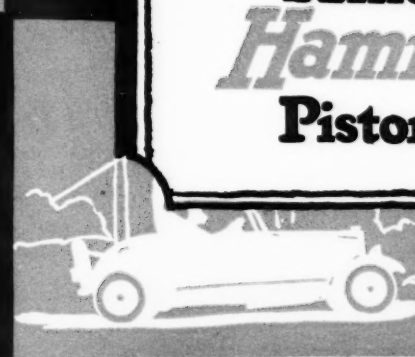
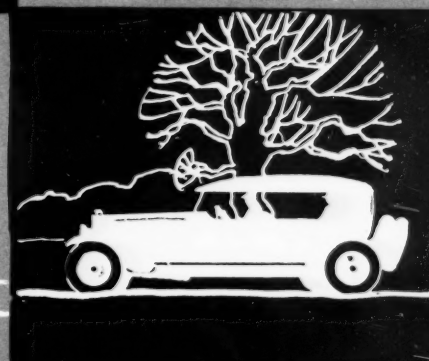
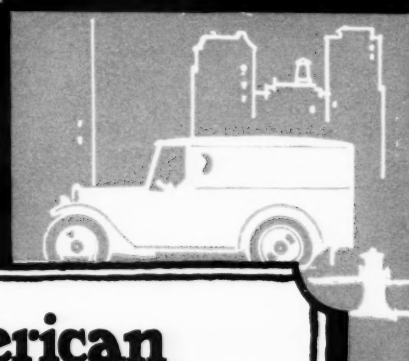
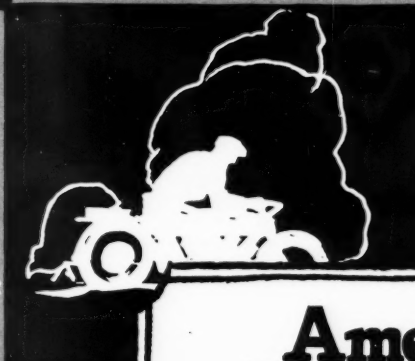
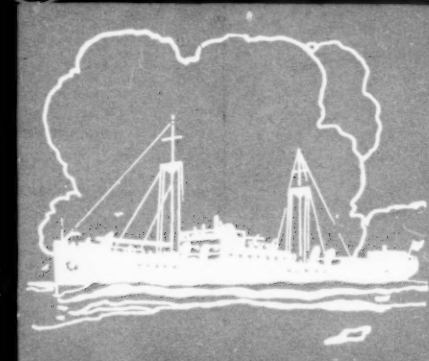
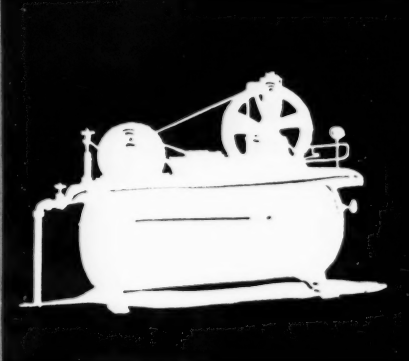
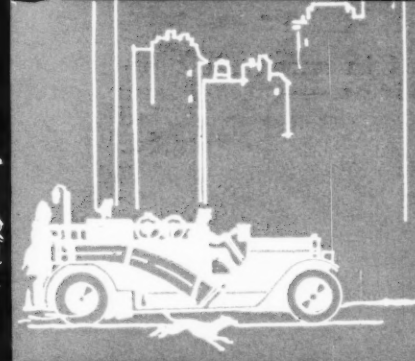
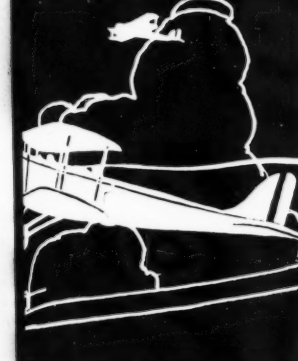
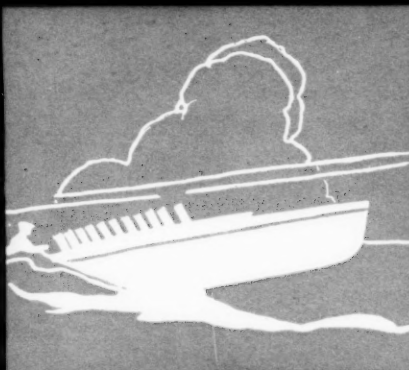
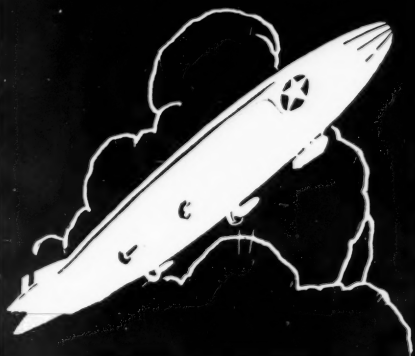
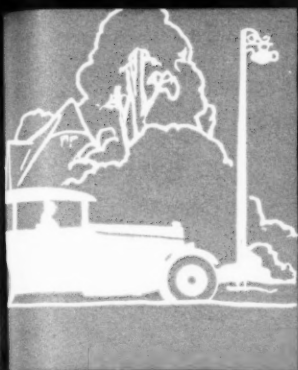
- ☐ Lockheed Brake Service Franchise  
☐ Wagner Starting-Lighting-Ignition Franchise  
☐ Both Lockheed and Wagner Service Franchises

NAME .....

STREET .....

CITY ..... STATE .....





**American**  
*Hammered*  
**Piston Rings**

# Added records for an

## The efficiency of the American Hammered Piston Ring in other fields further substantiates its position of leadership in the motor car replacement field

From the tiny rings used in small air compressors to the huge rings in ocean-going Diesel engines, in every use, American Hammered Piston Rings have won an enviable record. They have been subjected to the most gruelling service imaginable—often in equipment running steadily 24 hours a day.

American Hammered rings have passed every conceivable test—in laboratory and engine usage; in races, hill climbs, and endurance contests.

Hammering—by our special patented process—gives American Hammered rings the permanent uniform tension which *makes them seal compression* and perform perfectly in the engine under all conditions.

Look  
for the  
BALL POINT  
HAMMER  
MARKS  
inside the  
ring

# American Hammered Piston Rings



# n acknowledged leader!



## Fighting a huge mine fire

Probably the most gruelling service ever required of a piston ring further proved the merit of American Hammered recently.

Fighting a serious mine fire at Jonesville, Alaska, last winter, an American Hammered equipped America La France Fire Engine shattered all known pumping records—by pumping *continuously for thirteen days in zero weather*. Two hundred pounds pump pressure was maintained, which is equivalent to driving a car ninety-four hundred miles at top speed practically without interruption. Sworn affidavits attest the accuracy of these facts.



## In Marine Engines

American built Diesel engines use American Hammered Piston Rings more extensively than any other piston ring. Consistent performance under the severest conditions accounts for this. Crack transatlantic liners, on record runs, loaded with passengers and freight, use American Hammered rings in their high pressure steam cylinders main engines.



## In Aircraft

Every important airplane race during the last three years has been won with American Hammered Piston Rings in the engine.

Every important new world's record set by an airplane in the last year was helped by American Hammered Piston Ring performance.

Flying at an average speed of 80 miles an hour, recently a new Navy seaplane, American Hammered equipped, broke all non-stop seaplane records by remaining in the air for 28 hours and 43 minutes.

Travelling, day and night, the giant dirigible "Shenandoah" completed her nine thousand mile journey with perfectly functioning American Hammered Piston Rings in her six 300 horsepower Packard engines.

We could tell you of additional records in air compressors, trucks, tractors, and industrial engines—where high grade performance is vital. These achievements in other fields confirm the judgment of motor car service men everywhere that American Hammered is the best ring to standardize on for every job they do.



### Oil Ring

The Special American Hammered oil ring is available, when requested, in all stocks—packed in our special red box. Just the thing for cylinders slightly out of round—Same List Price.

Look for the  
BALL POINT  
HAMMER  
MARKS  
inside the  
ring

"The National Ring"

**do garagemen throughout the country install more American Hammered rings than any other make?**

*Because*  
American Ha

American Hammered Piston Rings put an end to all compression losses. They help the motor function at its best by *sealing the compression* permanently.

They are endorsed by leading engineers and installed by over two hundred motor car and engine builders.

American Hammered rings carry the lowest selling price for which a high grade ring ever has been offered. Steadily growing demand and huge quantity production make this possible.

The American Hammered line is safe to handle and is one of the few makes of piston rings to be obtained in a complete line of sizes. The Company behind the product and its protective policy are known in every territory as stable and strong.

American Hammered now has the best jobber and largest service station representation in the country. By concentrating on one line—American Hammered rings—you will not only earn your customers' satisfaction but a substantial, worthwhile profit as well.

AMERICAN HAMMERED PISTON RING CO.  
BALTIMORE, MD.

## FACTORY STOCKS

**BALTIMORE**  
Bush and Hamburg

**CHICAGO**  
2332 S. Michigan Boulevard

SAN FRANCISCO  
931 Larkin Street

30¢ *and up*



Van says—"You can't see what's in a good belt, but you soon see the insides of a bad one."

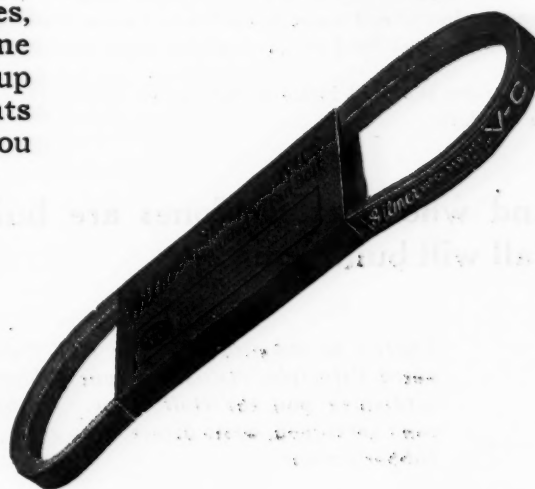
## The Belt That's Built to Go Around a Curve

Gilmer Super-Service Fan Belts are designed by engineers. Take the new Moulded V Shape—

A long series of tests have shown that a thick belt running around a pulley is up against the same problem as a car turning a curve. Builders gave the car a differential, but left the belt to rack itself to shreds.

Now Gilmer makes a belt planned by engineers. Its internal structure works like a differential—and *it can't wear itself out.*

Gilmer backs this quality with quality appearance—attractive packages, colored window displays and a fine looking free cabinet that speeds up sales, saves you shelf room, prevents belts from getting lost, and shows you when your stock of any size is low.



### FREE DISPLAY CABINET

All you have to do to get this free cabinet is to order Assortment No. 100 or Special Assortment No. 45. These belts cost you exactly the regular price. Your jobber can tell you all about it.

**L. H. GILMER CO.**  
Tacony, Philadelphia.

**SUPER-SERVICE  
FAN BELTS**

**Gilmer**



# When Better Hones are Built, Hall will Build 'Em!

(with apologies to Buick)

You need a cylinder Hone that does two things; round up an oval cylinder and make a taper cylinder parallel.

## The Hall Hone does both!

The results you can accomplish with the Hall Hone can't be copied.

**That's because of the Hall Patented Principle which removes both the oval and taper!**

Placed in an oval cylinder and the cones tightened, two of the stones are pushed against the cylinder wall at the point of the smallest diameter. As the Hall Hone revolves, two stones, alternating with the other two, do all the cutting until the hole is perfectly round. That's because all four stones are under equal pressure at all times and explains why you can fit new rings to a Hall-Honed cylinder and know the job won't come back showing compression loss, oil passing and crank-case dilution.

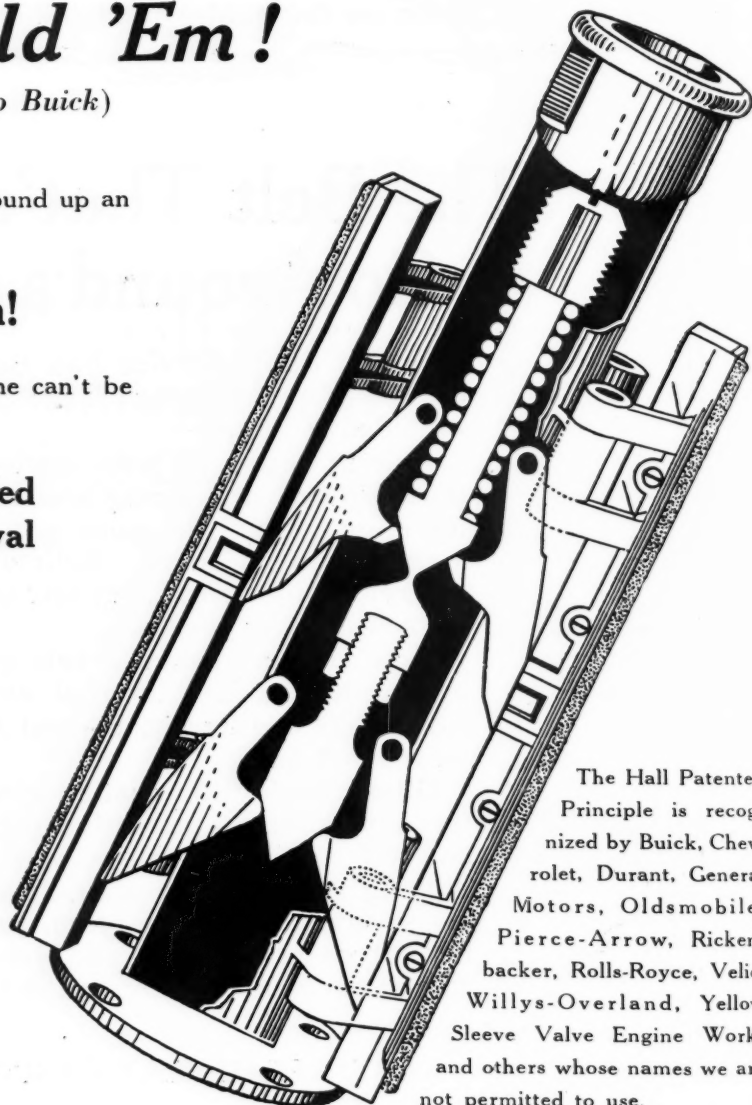
No wonder the Hall Hone is the fastest selling Hone on the market.

**And when better Hones are built,  
Hall will build 'em.**

*There's no substitute for the Hall Patented Principle. Insist on your Jobber furnishing you the Hall Hone. If he can't serve you, write direct to us giving Jobber's name.*

**THE HALL MFG. COMPANY**  
509 Hall Bldg., 1600-06 Woodland Ave.  
Toledo, Ohio

**Hall Cylinder Hone**  
Spring or Solid  
Pressure in One Hone



The Hall Patented Principle is recognized by Buick, Chevrolet, Durant, General Motors, Oldsmobile, Pierce-Arrow, Rickenbacker, Rolls-Royce, Velie, Willys-Overland, Yellow Sleeve Valve Engine Works and others whose names we are not permitted to use.

## The Most Profitable Tool in the Shop

The average charge for honing is \$2.00 to \$2.50 per cylinder, plus the labor charge. This charge makes cylinder honing one of the most profitable operations in the shop and represents a substantial saving to your customer over re-grinding, it being rarely ever necessary to remove the motor from the chassis. At this figure the first three or four honing jobs pay for the Hone, plus a profit to you. And last but not least, the customer is satisfied.

**New Improved Model**

New, Improved Hall Hone complete with one rubbing stone, 2 sets (8) Steel Jacketed honing stones, driving joint and suspension spring,

**\$35**



features that sell  
the new Chevrolet

CHEVROLET manufacturing schedules for October are even heavier than those for September. "Quality at low cost" is keeping Chevrolet plants running at capacity—and keeping Chevrolet dealers busy and prosperous.

There is twelve months' good business in a Chevrolet franchise—and a profit for every month.

CHEVROLET MOTOR COMPANY, DETROIT, MICH.

*Division of General Motors Corporation*



*for Economical Transportation*

QUALITY AT LOW COST

# To create absolutely

EVERYWHERE you look you see cars which are finished with Duco.

And every one of their owners has always wanted to buy a polish which was *specifically and precisely made to use on Duco*.

Here it is—Duco Polish No. 7—produced by the same chemical engineers who created Duco . . . obviously, it is the one polish which these millions of owners will have faith in—will ask for—will buy, and will keep on buying.

And now—*millions of advertisements*—telling all owners of Duco-finished cars why they should buy Duco Polish No. 7 . . .

. . . how it removes Traffic Film (read the ad at the right) . . .

. . . and how it adds the last superlative touch of beauty to Duco-finished cars.

The national advertising campaign begins October 24th.

If you have Duco Polish No. 7 on your shelves—and in your window—you will be ready to supply the demand which this advertising will promptly create.

If you don't—someone else will get the sales and profits that should come to you.

*As the advertising begins immediately, you should order now!*

E. I. DU PONT DE NEMOURS & CO., Inc.

3500 Gray's Ferry Road  
PHILADELPHIA, PA.

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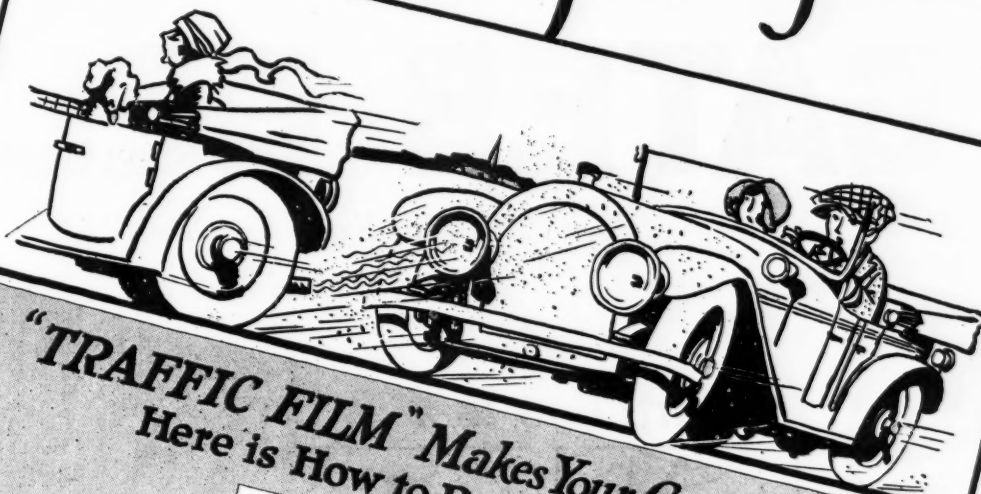
*After this—owners will*  
**Polish DUCO with DUCO Polish**

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# new business for you!



## "TRAFFIC FILM" Makes Your Car Dirty!!! Here is How to Remove It--

**WHENEVER** you drive — that disfiguring nuisance, "Traffic Film", forms on your car.  
You cannot evade it, for the exhaust of almost every car is loaded with tiny particles of oil, which have passed through its cylinders . . . these gummy oil particles are blown around the body of your car . . . wherever they touch, they stick . . . after a while there are enough so they adhere to each other — and then your car is coated with Traffic Film. Its surface promptly catches, and holds, the flying dust, which is everywhere — and, as the film becomes more dense, the beauty of your car, the richness of its color, and the brilliancy of its finish can be but dimly seen through the grimy dullness of the film. Traffic Film cannot injure Duco Finish, as it injures old-type finishes, — but it does hide its lustrous beauty.

Because Traffic Film is not easy to remove, and because owners of Duco-finished cars wish Duco beauty to be always seen, the same Chemical Engineers who created Duco have also produced a new du Pont product — Duco Polish No. 7, which removes Traffic Film. With a little of Duco Polish No. 7, on a soft cloth, you can easily wipe off the Traffic Film, and reveal the undisturbed, serene lustre of your Duco-finished car. Ask your dealer for Duco Polish No. 7. If he does not supply you, fill out the coupon, and mail it to us.

Polish Duco with Duco Polish

Made by the makers of



E. I. DU PONT DE NEMOURS & CO.  
3500 Gray's Ferry  
Philadelphia, Pa.

I want to remove Traffic Film from my Duco-finished car. Please send me a pint of Duco Polish No. 7.  
Enclosed find (check) (money order) ( )

Name \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_



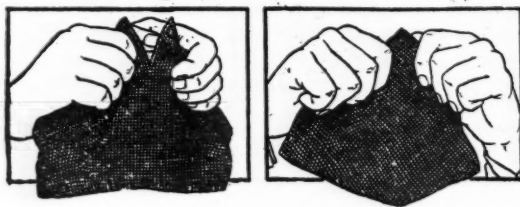
The above advertisement—in two colors—full page size—appears in *The Saturday Evening Post*, October 24th.

It will be followed by other advertisements, explaining that Duco Polish No. 7 is specifically recommended for use on all Duco-finished cars—and may be secured from all progressive dealers.

# GATES BELTS

*"The Standardized Fan Belt"*

*Try this test*



Take a piece of light fabric that you can tear easily in this manner—that is, straight across. Then try to tear it diagonally as in the next picture.

You find that it has double strength on the bias—a good illustration of the extra strength and durability of the bias weave construction.

By showing your customers this simple and convincing test, you tell them exactly why they are getting the extra service and satisfaction from the belt with the bias weave construction (patented)—the Gates Vulco.

Made by the World's Largest  
Manufacturers of Fan Belts.



# R. I. V. Ball Bearings



## Do You Want to Double Your Net Profits?

**R. I. V.** ball bearings are now sold with discounts based on the standard 1925 list prices. These discounts are distinctly profitable in relation to any and all others.

Our distributors realize a better net profit than distributors for any other bearing of recognized standing.

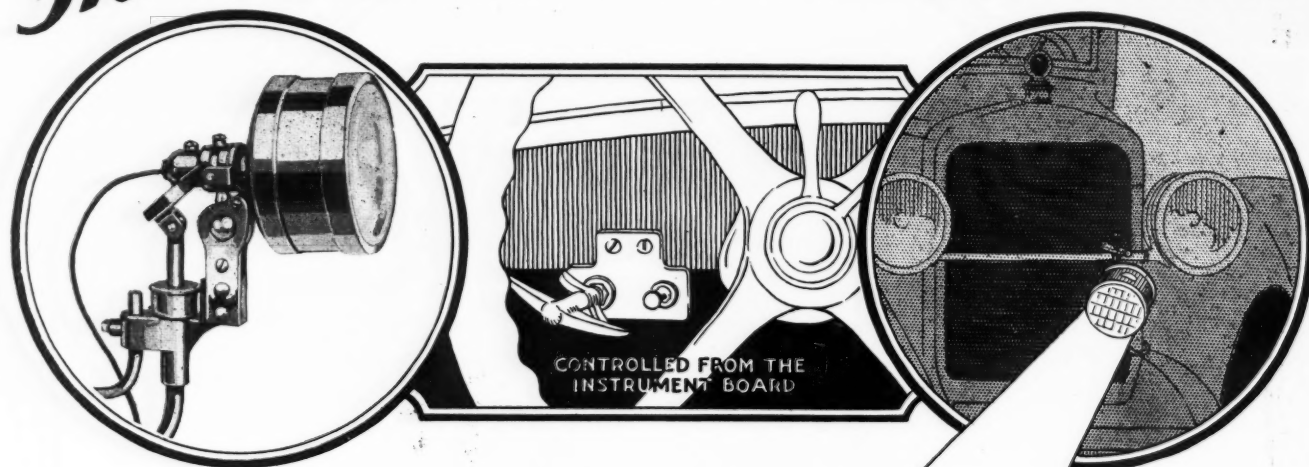
We have openings for distributors in various sections of the United States, and to *good* distributors we offer a proposition which in most cases will result in doubling the net profit per sale.

Write at once—and please give us information as to the volume of business you expect to do and the size of stock you usually carry.



Broadway at 57th St., New York City  
Branches—Detroit and San Francisco

# The Walden Fore-Lite



## Lights Where It's Needed

The Walden Fore-Lite is built to meet the persistent demand for a driving light, controlled from the instrument board, and mounted below the level of the radiator.

It lights the road where it's needed, or spots any object at any angle, without glare, or reflection from any source.



## Sells Faster Every Day

One Walden Fore-Lite on a car in your town sells more from the first day it's installed.

A beautiful lamp, mounted in front of the radiator, where it shows and advertises itself. A light at night that brings in sales from dozens of drivers who meet it on the road.


Car owners buy Walden Fore-Lites. They turn over fast in stock. Universal fittings. For all cars. Write.

## The Walden Company

1114 S. Michigan Ave.

Chicago





## Control the brakes of every car in town

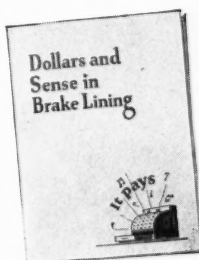
**T**HE number of brake service stations that are springing up about the country is amazing!

It means that automobile repair men are at last realizing the tremendous amount of profitable business that is to be had from the brake drum.

It's a quick, easy, clean job.

It's a legitimate replacement job that occurs at least four or five times in the life of every car. This means nearly 100 million re-lining jobs from cars on the road today — and several dollars profit from each job too!

To get a good share of this business the first thing for you to do is to send for the book shown at the left.



*The most complete book on getting profit from brake lining ever written. Send for it.*

*The rest is easy  
See next page*

# 6 ways to reline the whole town

## 1. Personal Contact:—

Ask 'em to re-line at the curb pump, at the accessory counter—everywhere throughout your shop.

## 2. Use the mails!

The postman can be one of your best salesmen. Tell every car owner in town that you are a brake specialist. Johns-Manville has specially printed post cards for the purpose. Ask your distributor for them.

## 3. Advertise!

Advertise your brake service in the local newspaper. Here again Johns-Manville can help you with cuts and plates for advertisements.

## 4. Telephone.

Follow up your prospects with the telephone. Remind them that perhaps their brakes need inspection and that happens to be your specialty.

## 5. Display.

Large signs inside and outside your shop telling the town that you re-line with Johns-Manville Brake Lining. We will provide you with attention-getting window displays and wall-hangers—free!

## 6. Stunt Advertising.

There are many ways that you can get the immediate attention of your entire town on their brakes. Make every motorist "brake-conscious" by conducting "safe brakes" campaigns, or capitalizing on a local accident, etc.

All the above ways of "telling the town" are thoroughly gone into in our new book "Dollars and Sense in Brake Lining." We believe it to be the most useful book on brake lining ever published by any manufacturer. Send for it under your letterhead. No charge.

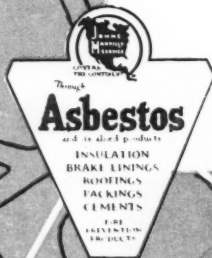
# JOHNS-MANVILLE

JOHNS-MANVILLE Inc., 292 Madison Ave. at 41st St., New York City  
Branches in 63 Large Cities

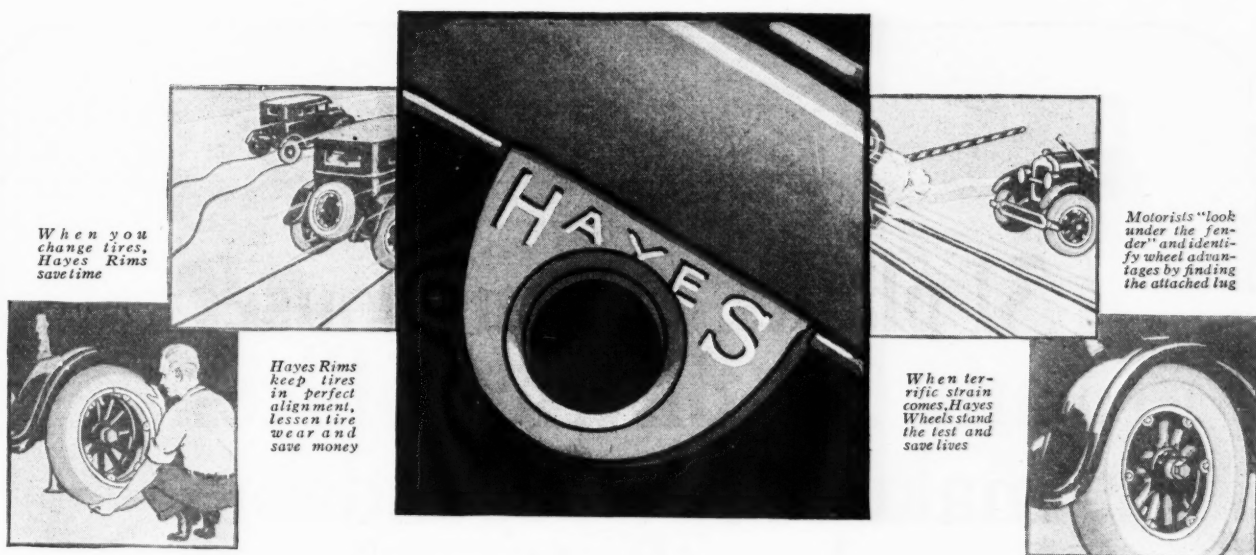
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

## ASBESTOS BRAKE LINING CLUTCH FACINGS ~ PACKINGS ~ ETC.

Printed in U. S. A.







**The Hayes Attached Lug  
—A Wheel-Advantage  
to motorists • • A Sales-  
Advantage to dealers,  
so great that it ranks  
in importance with  
pneumatic tires, elec-  
tric starting and light-  
ing and other modern  
motor car improvements  
that motorists want  
to buy, dealers sell and  
manufacturers specify.**

HAYES WHEEL COMPANY, *Manufacturers*, Jackson, Michigan  
Factories: Jackson, Mich.; Albion, Mich.; Anderson, Ind.; Nashville, Tenn. Canadian Plants: Chatham and Merriton, Ont. Export Office: 30 Water St., New York City

# HAYES WHEELS

WITH ATTACHED LUG RIMS ~ STANDARDIZED IN WOOD, WIRE AND DISC

31 plants, 71 warehouses  
and 22 district offices  
make sure a dependable  
supply of dissolved  
acetylene if you use

# *Prest-O-Lite*

## DISSOLVED ACETYLENE

THE PREST-O-LITE COMPANY, INC.

*Oxy-Acetylene Division*

General Offices: Carbide and Carbon Bldg., 30 East 42d St., New York

In Canada: Prest-O-Lite Co. of Canada, Limited, Toronto

31 Plants—71 Warehouses—22 District Sales Offices



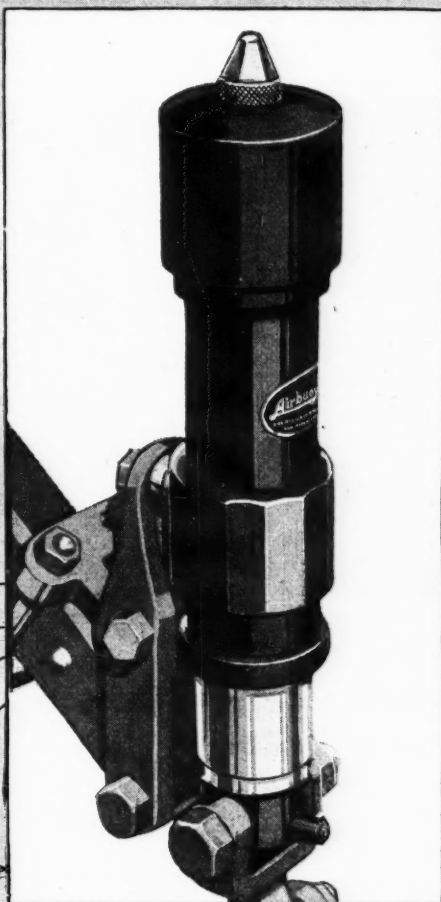


**ESSENTIAL FOR CORD TIRES—MAKE BALLOONS A COMPLETE SUCCESS**

Standard  
List Price

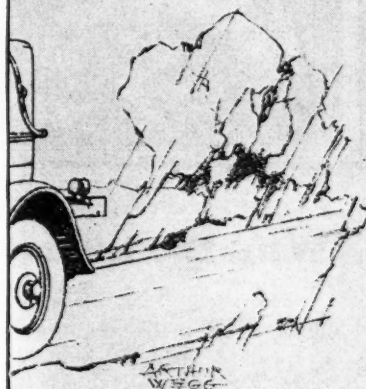
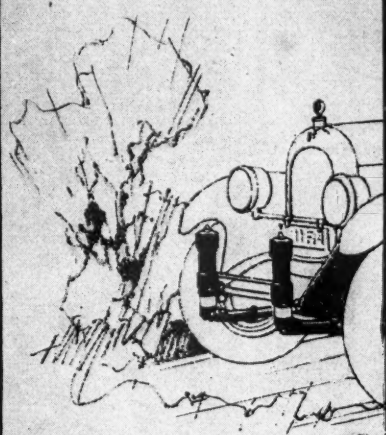
**\$125**

set of four  
installed



**A lasting  
investment**

—transfer them  
from your old car  
to your new one



# Airbuoys

TRADE MARK REG. U. S. PAT. OFF.

## An Entirely New Sensation in Riding Comfort And a Wonderful Opportunity for Distributors

**AIRBUOYS** are a new type of hydraulic-pneumatic shock absorbers.

They not only take the initial shocks that are too rapid for the springs to absorb, but the severe shocks and wicked rebound are absorbed in the Airbuoy mechanism instead of passing through to the car body.

You feel no shock, no bounce, no sideways.

Airbuoys stop the annoying "bobbing" of cars

with Balloon Tires—they make Balloons a complete success.

They can be transferred from old car to new car—making them a lasting investment in comfort.

Territory is being allotted in all parts of the country. This is a real opportunity for reliable, aggressive distributors, for Airbuoys carry an ample margin of profit and are out of the competition of ordinary "shock absorbers."

Distributors with foresight will act now.

**THE RELIANCE MANUFACTURING CO., 61 Foote St., New Haven, Conn.  
GENERAL DISTRIBUTORS**

**NEW YORK**  
Veedan Air Spring Co., Inc.  
309 West 66th Street

**BOSTON**  
Reliance Sales Corp. of N.E.  
186 Brookline Avenue

**CHICAGO**  
Airbuoy Company of Illinois  
2626 South Parkway

**NEW HAVEN**  
Shock Absorber Sales Co.  
336 York Street

**PROVIDENCE, R. I.**  
The John B. Lavallo Co.  
69 Elmgrove Avenue  
**ROCHESTER, N. Y.**  
Kiefer-Reliance Air Spring Co.  
135 Pierpont Street

Use this  
coupon

THE RELIANCE MFG. CO., Dept. A, 61 Foote St., New Haven, Conn.

Please send me details of the Airbuoy distributorship.

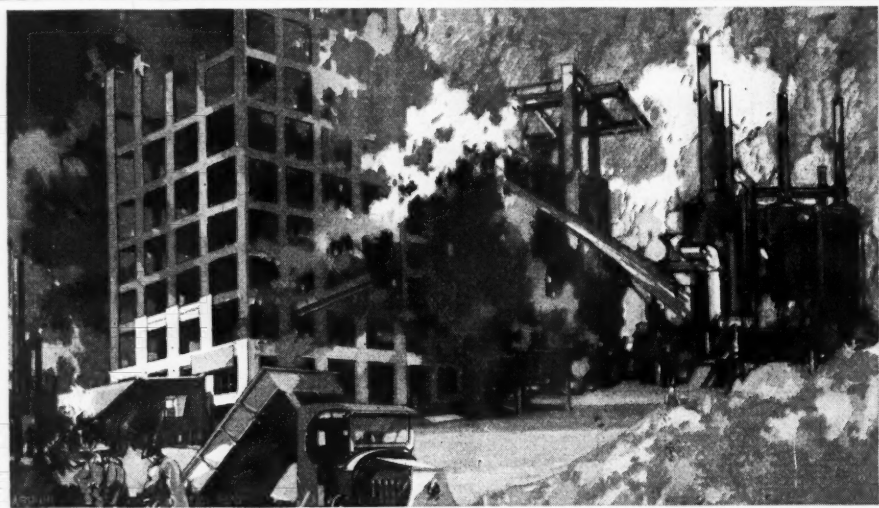
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

## THE STORY OF THE EMPIRE NEW PROCESS BOLT—Chapter 2. No. 4



### Why the industrial world welcomes this new bolt

SO much depends on how well the thread of a bolt holds up under strain that in this respect great industries have long been at the mercy of the eccentricities and failures of the cut thread bolt.

Cut threads are the cause of the misfitting, fracturing and stripping that waste so many bolts, use up so much time, and entail such costly risks.

But these failures are a thing of the past now that the Empire New Process bolt is here.

#### Cutting Is Destructive

Externally a cut thread bolt looks like an Empire New Process bolt. But there the resemblance stops. When the cutting dies dig into the bolt to make the thread, they attack the steel molecules

and break up the cohesive formation that gives the steel its strength. Hence the thread is woefully weak—and likely to strip any time a strain is imposed.

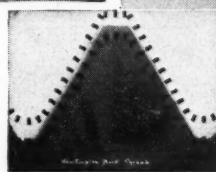
#### Strength Where It Is Needed

Empire New Process bolts are threaded by pressure on a specially prepared blank, instead of by cutting.

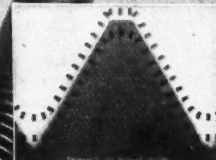
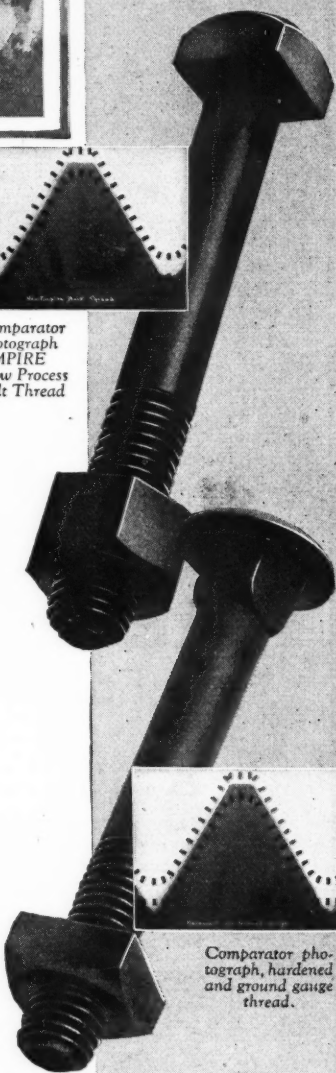
Dies of a unique type force up the metal, and in so doing bring the steel molecules together into a closer bond, thus strengthening instead of weakening the thread.

To strip an Empire New Process bolt is to achieve the impossible.

Does that seem like a flight of fancy? Try it yourself, then. Samples will be sent, if you ask for them.



Comparator photograph  
EMPIRE  
New Process  
Bolt Thread



Comparator photograph, hardened and ground gauge thread.

## RUSSELL, BURDSALL & WARD BOLT & NUT COMPANY PORT CHESTER, N.Y.

Branch Office:  
Straus Building  
CHICAGO

Branch Office:  
General Motors Bldg.  
DETROIT

Branch  
Factory:  
ROCK FALLS, ILL.

Strimple & Gillette  
169 Jackson Street  
SEATTLE

Maydwell & Hartzell, Inc.  
158-168 Eleventh Street  
SAN FRANCISCO

Makers of Bolts, Nuts and Rivets Since 1845

# EMPIRE

## New Process BOLTS



# Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME

## Is the Wish Father to the Thought?

Are you perhaps, like a certain large automobile dealer with whom we signed up a nice contract for a splendid piece of territory the other day?

He came to the factory.

Expressed his amazement on arriving here, to find that we really did have a factory.

And his enthusiasm knew no bounds when he saw the wonderful tool-equipment, the improved processes, and the beautiful way in which we finish every part that goes into this car.

Then, being a man of large means, with a big investment, and being (as may be supposed) a good business man, he asked timidly, so as not to hurt our feelings,—

"May I ask for a financial balance sheet—I want to assure myself as to the financial standing and stability of your company before closing up."

Now that just happens to be one of the things of which we are most proud.

And so, while it is not considered good form for a man to display his purse in a drawing room, we do like an excuse for

showing the splendid fiscal conditions of this 4-year-old concern.

Again, he was amazed.

Then he confessed:—

"Do you know," said he, "I never really examined this car before—never drove one.

"Fact is, I was 'trying' (he said 'trying') to sell a competitive car.

"At every turn I ran into Rickenbacker—buyers asked about 4-wheel brakes, air cleaners, 4-door Coach-Broughams, etc.

"I got to hate it.

"I didn't want to know anything good about it.

"I thought it all wrong—and now I know 'the wish was father to the thought.'"

"And now?" we asked.

"I'm sold!" he exclaimed, "and believe me I can sell the product without trying."

Does this suggest anything to you?

Then—come over to the factory.

### Rickenbacker Motor Company

Detroit, Michigan

#### Famous "Six" Prices

Phaeton	\$1495
Coach-Brougham	1595
Roadster	1595
Coupe-Roadster	1695
Sedan	1795
De Luxe Coupe	1995



#### Vertical "Eight" Prices

Phaeton	\$1995
Brougham	1995
Roadster	1995
Coupe-Roadster	2095
Sedan	2195
De Luxe Coupe	2320

f. o. b. Detroit—plus war tax

# Sell Repairs at Flat Rates!

**W**HEN one of your customers drives into your shop and asks the price of a repair, don't lose the job by admitting that you can't make an accurate

estimate. Quote a price and stick to it! You can do it, and know that your price is right by using the rates suggested in

## ... MOTOR AGE'S ... FLAT RATE MANUAL

277 operations and 42 cars are covered in these comprehensive schedules. A price is provided for practically every job that the average shop ever has

occasion to perform. With this Manual on file a correct quotation can be made on practically any job that rolls into the shop.

### This Manual Is Practical

An experienced maintenance man who has spent years in the shops worked for six months testing and verifying the rates quoted in this Manual. His researches **prove** that the plan of Flat Rate Operation suggested in this booklet is practical in every respect. It works out under average shop conditions.

### FLAT RATES THAT WORK!

*Read what a practical repair man says about it:*

Pittsburgh, Pa., July 2nd, 1925.

MOTOR AGE,  
5 So. Wabash Ave.,  
Chicago, Illinois.

Gentlemen:—Would you kindly send us by Parcel Post, C.O.D., three copies of "Motor Age's Flat Rate Manual" as printed in your magazine of April 30th, 1925.

We have been using this guide continuously since its issue, and have had remarkable success with it.

Yours for "Flat Rate,"  
Automotive Repair Company  
(Signed C. T. FURNISS)

If you are interested in improving the service which you render your customers and in making more money for yourself, you should not pass up this opportunity to obtain the best and most complete information available on the subject of Flat Rate. This price of the booklet is so little—only 50 cents—that no shop can afford to be without it.

*Tear off on this line*

**The coupon is  
here for your  
convenience!**

MOTOR AGE,  
5 So. Wabash Ave.,  
Chicago, Illinois.

Date.....

Gentlemen:—Enclosed please find \$..... for which mail me.....  
copies of your Flat Rate Manual.

Name.....

Address.....

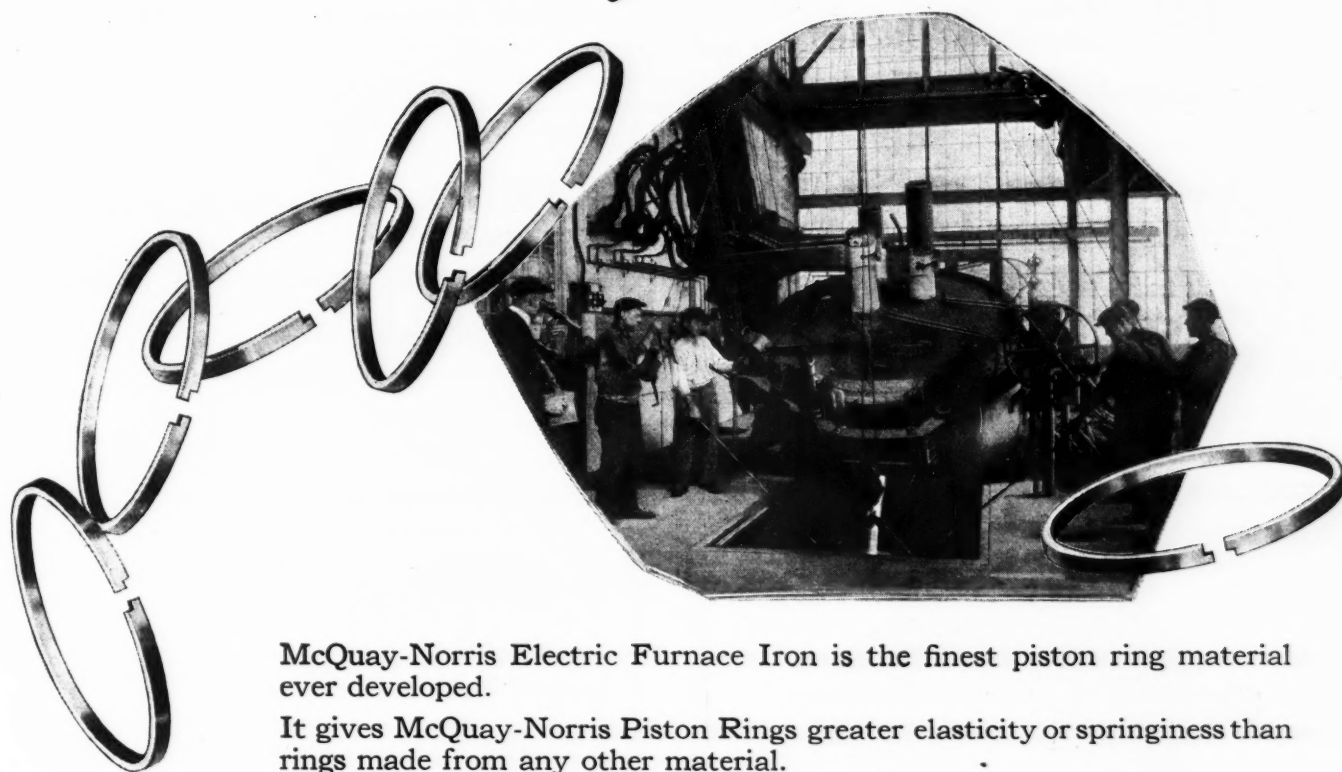
City..... State.....

Firm Name.....



# McQUAY-NORRIS PISTON RINGS

*are made of Electric Iron*



**Remember**

*The best profits are  
in the best parts.  
Poor replacement  
parts can ruin a good  
mechanical job.*

McQuay-Norris Electric Furnace Iron is the finest piston ring material ever developed.

It gives McQuay-Norris Piston Rings greater elasticity or springiness than rings made from any other material.

This is because the phosphorus, sulphur, oxygen and other undesirable elements for piston ring iron are controlled during the melting process. This can be done only in the Electric Furnace where there is constant control of the mixture during the melting and refining.

Only McQuay-Norris Piston Rings are made from this Electric Iron. It's an exclusive feature of the McQuay-Norris Piston Ring line.

As in McQuay-Norris Piston Rings, there are marked superiorities in the whole McQuay-Norris line—piston rings, pistons, pins and bearings.

## McQUAY-NORRIS

**PISTON RINGS  
PISTONS  
PINS  
BEARINGS**

McQUAY-NORRIS MANUFACTURING COMPANY, *General Offices:* ST. LOUIS, U. S. A.

*Factories:* St. Louis, Indianapolis, Connersville, Ind.; Toronto, Canada

# The Only Autowline that is:

- (1) Made of the famous, nationally advertised Yellow Strand Wire Rope.
- (2) Equipped with Patented Snap Hooks that are the last word in simplicity and efficiency.
- (3) Well established because it has been backed by years of national advertising.
- (4) Strong enough to stand a 6000 lb. pull and yet weighs only 4½ lbs. and coils neatly under a seat cushion.

*BASLINE AUTOWLINE pays Jobbers and Dealers a good profit, too. Write for Price List and descriptive literature.*

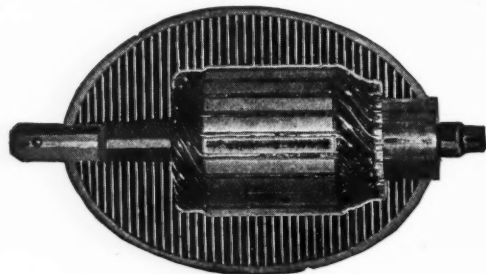
**BRODERICK & BASCOM ROPE CO., St. Louis**

Eastern Office and Warehouse—76 Warren Street, New York City

**BASLINE AUTOWLINE**



J342



## LIVE Ones Cash In on DEAD Armatures

Ship burnt-out armatures to Fredericks and exchange them for rewound ones guaranteed for 90 days. A little booklet, chuck full of interesting dope and prices, will be sent to you free if you'll just send your name.

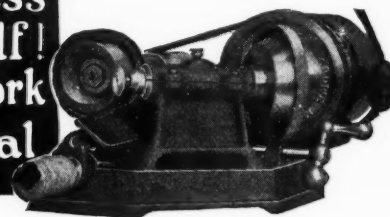
FORD GENERATOR Armatures Rewound.....	\$1.50
FORD Starter Armatures Rewound.....	1.50
ALL OTHER TYPES TWO-UNIT Generator Armatures Rewound .....	3.25
ALL OTHER TYPES TWO-UNIT Starter Armatures Rewound .....	3.25
ALL TYPES MOTOR GENERATOR Armatures Rewound .....	8.00

*GUARANTEED to give the same satisfaction as new armatures.*

The H. M. FREDERICKS CO., Lock Haven, Pa.

**FREDERICKS**  
Rewinding Service

**Costs Less  
than Half!  
Better Work  
Free Trial**



## CROWE CUP WHEEL VALVE REFACER

Price Only

**\$85.00**

Complete  
**EASY TERMS**

**T**HE astonishingly low price of this machine puts it within the reach of every auto repair shop. The big shop can give better service with the Crowe. And with this machine the small shop is fully equipped to give the same high grade valve service as the big shop.

But aside from its money-saving price, the Crowe has many special features that make it preferable.

We would like an opportunity to give you the complete details of this improved valve face grinder, our easy extended-payment terms, and our *Free Trial Offer*. Will you write us today for this information?

**LISLE MANUFACTURING COMPANY**  
CLARINDA, IOWA



# Garages are buying a Second and even a Third "YANKEE" Ratchet Breast Drill



Five adjustments controlled by Ratchet Shifter between the small gears.

No. 1555 (Illustrated) 3-jaw; No. 555, 2-jaw. Hold  $\frac{1}{2}$  in. Drills No. 1545, 3-jaw; No. 545, 2-jaw. Hold  $\frac{3}{8}$  in. "Yankee" Plain Breast and Hand Drills come without Ratchet adjustments.

You have a "Yankee" Breast Drill because you know it will work where others can't; because it enables your men to get through with an awkward drilling job in short order.

But is one of these invaluable Drills enough?

There's Harry calling for the "Yankee" Breast Drill. He wants to use it on the cylinder head bolt of the motor he's working on. But he can't have it because Sam is using it to drill out a stud bolt on a clutch housing.

It pays to have more than one of such a time-and-labor saving tool as the

**"YANKEE"**  
Ratchet  
Breast Drill  
No. 1555

Set at DOUBLE Ratchet, the slightest to and fro motion of the crank sends the drill into the work, and keeps it cutting with the speed of an ordinary breast drill when the latter is operated by a full turn of the handle.

Two speeds. Five Ratchet adjustments. Plain Drill; Left-hand Ratchet; Right-hand Ratchet; DOUBLE Ratchet; Gears Locked.

Some other "Yankee" Tools

Ratchet Hand Drills  
Ratchet Chain Drills  
Ratchet Bench Drills  
Bench Vises  
Removable Base

**FREE—Tool Book.** Write for a copy of this handy booklet that shows all the "Yankee" metal-drilling, and screw-driving tools. You'll find some you need badly.

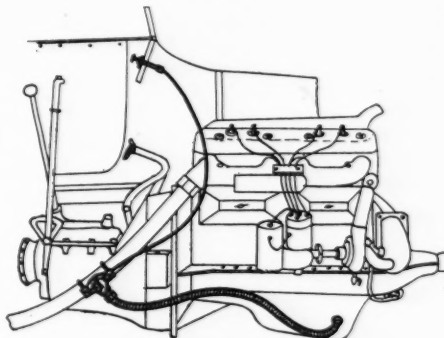
"Yankee" on the tool you buy means the utmost in quality, efficiency and durability.

Dealers everywhere sell "Yankee" Tools.

**NORTH BROS.  
MFG. CO.**  
Philadelphia, U. S. A.

**"YANKEE" TOOLS**  
*Make Better Mechanics*

## To Dodge Dealers:



Patented Jan. 2, 1924

**AN OIL HEATER** operated by a dash control, for the crank-case of Dodge cars, that has sold itself to every Dodge dealer we have approached.

Do not confuse this heater with any that simply attempt to heat the oil in the crank-case. This appliance heats the screen where the trouble develops, and does it quickly. The oil pump works in half a minute.

It was used satisfactorily last winter and is easily sold.

**DISTRIBUTORS** — please write for our proposition. Special price is offered on early orders placed for October shipment. We will not be able to supply the demand as promptly when cold weather comes.

We also make a heater, based on the same general principle, for **ALL OTHER MAKES OF AUTOMOBILES** except the Ford.

**The Coleman Crank Case  
Oil Heater Co.**  
Lincoln, Nebraska

P. O. Box 869

## FOLLETT'S NEW MODEL TIME STAMP



Learn the interesting details from our descriptive data.

*accounts for every labor minute*

Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

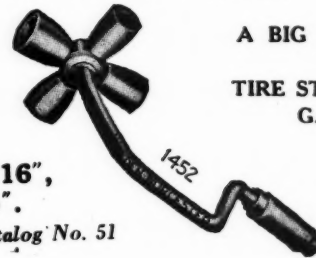
Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic—except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N. J.

"Established Since 1904"

## FOUR SOCKET RIM WRENCH



A BIG TIME SAVER  
FOR  
TIRE STATIONS AND  
GARAGES

Four  
Sockets  
5/8", 11/16",  
3/4", 7/8".

Ask for Catalog No. 51



**WALDEN-WORCESTER**  
INCORPORATED  
WORCESTER, MASS.

## MORRISON

Automatic Double Range

### Worm Drive JACKS

Special model for Balloons

Can't Slip or Tilt

Flexible steel "Sure Hold" cap prevents dangerous slipping. Long folding handle (36 to 72 in.) operates from standing position. Gets under overhanging bodies. Easy to work. Few turns and it's up. Built in 11 sizes for all service requirements up to 8 tons. Furnished as standard equipment on fine passenger cars, trucks, buses and Fire Apparatus for past 4 years. The Jack for YOUR shop. Write for sample for test.

THE WOODS ENGINEERING CO., Alliance, Ohio

## BOLTS BLUE PRINT BUSHINGS

"Made to Blue Print"

"Bp" guarantees to the Replacement Trade the same high standard of Quality and Accuracy demanded by the car manufacturer. "Bp"

The Fostoria Screw Co., Fostoria, Ohio

# KISSEL

CUSTOM BUILT

Kissel Motor Car Co., Hartford, Wis.

"As Silent as a Shadow"

## Quincy Compressors

Quincy, Illinois

J-538

Transmissions and Clutches **BROWN-LIFE GEAR CO.** Trucks, Busses and Passenger Cars

QUICK SERVICE ON COMPLETE UNITS OR PARTS

## BROWN-LIFE GEAR CO.

SYRACUSE, N. Y.

## TEMCO

Portable Electric Tools

The highest grade for the automotive trade.

The Temco Electric Motor Co.  
709 Sugar St., Leipsic, Ohio

Model G-D, Half Inch  
Garage Drill, \$56.00

# TIMKEN

Tapered

## ROLLER BEARINGS

Always Insist Upon  
Genuine  
Apex Innerings

Most good Jobbers stock them  
If it isn't an Apex—It isn't an Innering

THOMSON MFG. CO.  
Dept. C Peoria, Ill.

20c ea. (Retail)

Write for Attractive Discounts

## TAKE THE END-PLAY OUT!

—WITHOUT PULLING THE MOTOR

THE C. A. ADJUSTABLE CENTER BEARING CAP corrects Ford crankshaft end play and sets magnets for highest efficiency without removing the motor. Easily and quickly installed. Guaranteed for one year. List price \$3.75. Ask your jobber or dealer or write us direct.

ADJUSTABLE BEARING CO., Inc.  
Dept. M. Brazil, Indiana

Pat'd 7-22-'22

**free** write for your copy

The Book "AIR PROFITS" Shows how to get more work out of an air compressor. How to use compressed air for many pay jobs.

BRUNNER MFG. CO. UTICA NEW YORK

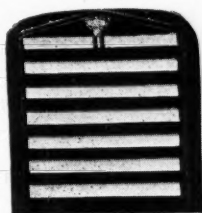
**BRUNNER** AIR COMPRESSORS



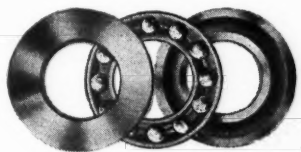
## RADIASHIELD \$10 for all Cars!

### Dealers Wanted

Now, at last Radiashield, the perfect radiator cover. All-metal, best-looking and best heat-regulator. Dash control. Baked black enamel \$10. Non-corrosive aluminum \$12. A better cover at a lower price. Write your jobber or us mentioning jobber's name.



**RADIASHIELD DISTRIBUTORS**  
310-30 Church St. New York City



**STAR BALL RETAINERS** for Thrust, Magneto and Cup and Cone Types of Bearings—

The Bearings Company of America  
Lancaster, Penna.

Western Sales Office,  
1012 Ford Bldg., Detroit, Mich.

## You can locate Light Trouble immediately

—if you have this book

### "Electrical Equipment of the Motor Car"

Electrical Equipment of the Motor Car is a book full of valuable information needed by every garage and service station man. Send \$3.50 for ten-day examination. Return book if not satisfied and we will refund your money. Act now.

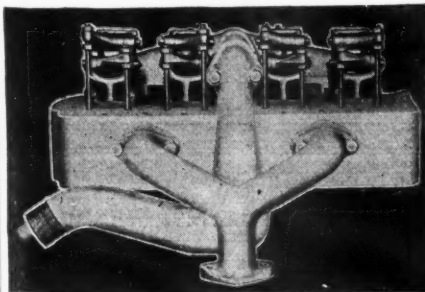
A working guide on the installation, care and repair of the starting, lighting and ignition system of all cars. Makes it a comparatively easy task to trace out and locate all cases of electrical trouble in a very definite and systematic way. A most valuable text-book that no mechanic should be without. Take advantage of our special 10-day offer. Send money with your order—examine the book—if not satisfied return in ten days, and we will refund your money. Only a limited number of copies left so act now.

**MOTOR AGE**

Book Dept.

5 S. Wabash Ave. Chicago, Ill.

## ROOF 16 OVERHEAD VALVE EQUIPMENT For Ford and Dodge Motors ROOF 8 VALVE HEAD FOR FORD MOTOR



### Stupendous Power— Lightning Speed

Ford racing cars with Roof Equipment are rivals on mile and one half mile tracks of the highest priced racing cars. Doubles the pulling power of the Ford or Dodge pleasure car or truck. Hill climbing and general road work beyond wildest dreams of the owner. Complete—ready for installation—no machine work necessary. We are headquarters for all speed equipment. No matter what you want, write us. Racing quality—lowest prices. A postal card brings you complete list of our specialties.

Jobbers—Dealers—Consumers—Write Us.

**THE LAUREL MOTORS CORPORATION, ANDERSON, INDIANA**



**M**EMBERS of the Automotive Industry have always made The Hollenden their headquarters when in Cleveland. Eight hundred large, spacious modern rooms, each with bath, at reasonable rates. Quiet, unobtrusive, efficient service, homelike atmosphere and good food.

The famous Crystal Dining Room is noted the country over as a real place to dine. The Hollenden Coffee Shop offers the same good food with quick service.

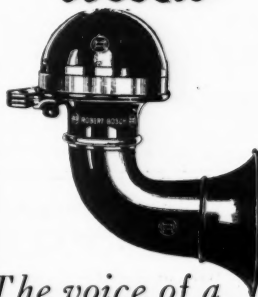
In Cleveland It's

## THE HOLLENDEN

Superior Ave. at E. 6th St.

Theo. DeWitt, Mgr.

The Original  
**Bosch**



The voice of a  
gentleman's car

Copyright by Robert Bosch  
Magneto Co., New York, 1925

## Are you selling it?

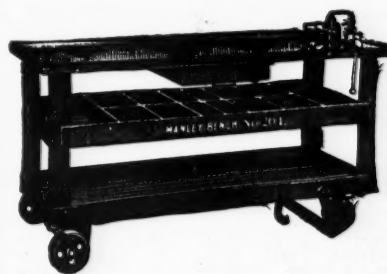
The clear, musical note of the Original Bosch Horn is attention compelling, yet courteous and friendly. Its quick, snappy action is extremely valuable when a second's delay in warning may mean a collision. Because it's Original Bosch it cannot get out of order, but will retain its unique tone and operate for the life of the car without lubrication, adjustment or repairs. Dealers write us.

Robert Bosch Magneto Co., Inc.

109 West 64th St., New York

Chicago Branch: 1302 So. Wabash Ave.

## Get a Manley



**PORTABLE WORK BENCH.** In repair shops the stationary Benches are built along the wall, and are located at considerable distance from the car upon which work is being done. This necessitates many steps, consuming time and the energy of the workman, all of which is saved by placing the Manley Bench at the car. Manley Portable Work Benches are of a substantial construction, with hard wood top, steel drawer, shelf partitions, seasoned wood, roller bearing casters, and provision made for locking wheels. Made in two sizes.

**MANLEY MFG. CO.**

**YORK, PA.**



**CURTIS**  
AIR COMPRESSORS—HOISTS—TROLLEYS—CRANES  
**ST. LOUIS**

Curtis Pneumatic Machinery Co.  
1527 Kienlen Ave.  
St. Louis, Mo.

### NO TOOLS—It's Self-Closing



Repair Link for Broken Cross Chains  
A Self-Closing Monkey Link attached with fingers to loose ends of broken chain closes and locks on first turn of wheel. Stops clanking—saves fender—low-priced. Box of 10 Links retails for 25 cents.  
Write for samples and discounts.  
Distributors wanted.  
FLOWER CITY SPECIALTY CO.  
Rochester, N. Y.



**UNITED STATES**  
Portable Electric  
**DRILLS**

Built by the oldest maker of Portable Electric Drills in the World.

Ask for Catalog 185 THE UNITED STATES ELECTRICAL TOOL CO.  
Cincinnati, Ohio, U. S. A.

## Prest-O-Lite

STARTING AND LIGHTING BATTERIES  
Powerful—Dependable—Economical  
Backed by a World-wide Service Organization  
THE PREST-O-LITE CO., Inc., Indianapolis, Ind.  
New York San Francisco  
In Canada—Prest-O-Lite Co. of Canada, Ltd., Toronto, Ont.

## PROTECTOMOTOR 99 9/10

REG. U.S. PAT. OFF.  
Perfect Positive Protection

Filters all dust, sand and grit out of air supply to carburetor and motor. Write us for facts.

STAYNEW FILTER CORPORATION  
Rochester, N. Y.

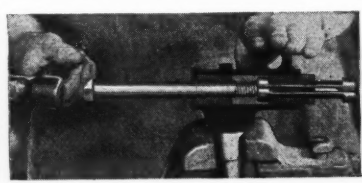
**EFFICIENT**



**CRAYER OILER**  
PATENTED MAY 6, 1923  
THE COMBUSTION CHAMBER LUBRICATOR

CRAYER OILER CO. OF AMERICA  
Division of Miller Lock Co.  
Frankford, Philadelphia, U. S. A.

\$12.50  
FITS ANY CAR



### DIERINGER

#### BUSHING REMOVER

Any spindle bushing out in two minutes! Merely insert tool, drive out with hammer. Full set of 3 sizes covers all cars. \$4.50. Write for trade discount. Distributors wanted.  
E. T. Dieringer, Box 282, Bolivar, O.

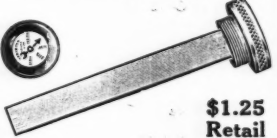
### The Money-Making Line—

## WILLYS-OVERLAND

Fine  
MOTOR CARS

### A Quick Seller and a Tremendous Market

FORD, CHEVROLET and OVERLAND owners buy this TASCO Gauge on sight. It screws in place of the filler cap—saves "measuring" the gas—and it is guaranteed for the life of the car. They sell all the time.



THE AKRON-SELLE CO., Akron, O., U.S.A.

\$1.25  
Retail

## ZENITH


CARBURETOR

More Power  
Less Fuel

Zenith - Detroit Corporation, Detroit, Mich.

Made in many sizes to meet any and all requirements in garage, tire repair shop and filling station. Six types: Two Stage, Single Stage, Air Cooled, Water Cooled, Stationary, Portable. Our low prices enable you to get a Compressor for a small investment. Send for literature.

**The United States Air Compressor Co.**  
5304 Harvard Ave. Cleveland, Ohio



### Rubber Tubing for the Trade

EKLA radiator hose—All-Rubber or Cloth-Inserted, tire pump hose and windshield wiper tubing, all in standard lengths, will show you better profits and your customers better service.  
Insist on EKLA Brands when buying these items.  
THE ECLAT RUBBER COMPANY  
Cuyahoga Falls, Ohio

## Packard Cable

The Packard Electric Co.  
Warren, Ohio



## RAMCO

Cushion  
INNER RINGS

fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

RAMSEY ACCESSORIES MFG. CORP., ST. LOUIS, MO.



### —Bakelite Case!

This famous roller-type timer is absolutely "short-proof". The only standard timer with Bakelite case.

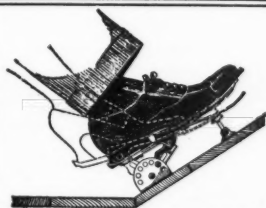
**MILWAUKEE**  
TIMER for FORDS

## The Cooper

CUT-OUT  
ENGINE TESTER AND CARBON OUTLET VALVE

Dependable. Certain. Easily installed. A big seller all the year round.





### The Adams Adjustable Foot Rest

Adjusts comfortably and easily to most convenient height for any driver's leg. Foot lies in normal, restful, uncramped, safe position. Big, fast seller. Senior, \$3.50. Junior, \$1.25. Ask your jobber.

**Adams Mfg. Co.**

Galesburg

Illinois

## Kawneer

SOLID COPPER  
**STORE FRONTS**

Write for Special Book Garage Front  
THE KAWNEER CO., 2924 Front St., Niles, Mich.



### Valve Face Grinding Machine

Before you buy any valve grinding machine it will pay you to investigate the "Sioux." Nothing like it!

*Ask Your Jobber About It.*

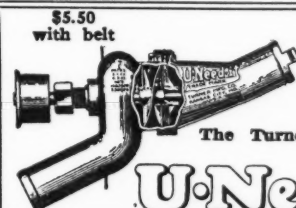
Albertson & Co.

Sioux City, Iowa



### Look for a Jacobs Chuck on the Drill you buy—

The patented Tooth and Sleeved Key feature saves time, prevents slippage, reduces the breakage of drills and gives greater accuracy. Jacobs Chucks are the specified equipment of 132 makers of Drilling Machines and Portable Drills.



**The Big Seller in the Ford Pump field—at a new low price.** Get our dealer plan.

The Turner Mfg. Co., 31st and Roanoke Rd.  
Kansas City, Mo.

**U-Need-It**

**ROTARY PUMP for FORDS**

## FISK TIRES

*There's a Fisk Tire of extra value in every size, for car, truck or speed wagon*

## MONOGRAM ORIGINAL

**SELF LOCKING RADIATOR CAP**

THE KINGSLEY-MILLER CO.  
Successors to  
(General Automotive Corporation, Chicago)  
600 West Jackson Boulevard Chicago



**A KLEAN-RITE Auto Laundry Franchise Is a Big Money-Maker**

Write for a copy of our booklet on "The Business Possibilities of An Auto Laundry." It contains valuable information. Sent free upon request.

**KLEAN-RITE AUTO LAUNDRY CO.**  
1710 E. 75th St., Chicago

### Nationally Advertised!

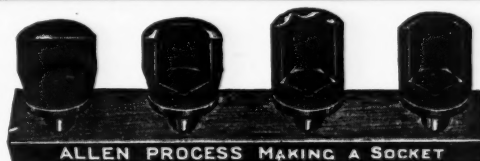
Write to-day for catalog and sales plan.

**GEMCO MFG. COMPANY**  
760 S. Pierce St.  
Milwaukee, Wis.



**Gemco BUMPERS**

Cold-Drawn Sockets



**ALLEN Wrench Sets**

**The Allen Manufacturing Company, Hartford, Conn.**

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##### DOWMETAL PISTONS

Lighter, stronger, and longer wearing than aluminum or iron. Can be fitted with bronze bushings in the wrist pin holes same as in iron pistons. Dowmetal has no permanent growth. The expansion is little more than iron.

SEND FOR PARTICULARS

**LAMBERT & MANN CO.**

Cylinder and Crankshaft Grinding  
215-21 N. Wood St. CHICAGO Phone West 4918

##### AUTO PARTS

**SAVES 50% to 75% ON ALL CARS**

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

**INDIANA AUTO PARTS CO.**

318-18 NO. ILLINOIS ST. INDIANAPOLIS, IND.

**LARGEST CAR WRECKERS IN INDIANA**

### HOUSE OF A MILLION AUTO PARTS

The largest stock of new and used car and truck parts in the world. We have everything. Always mention model and serial number in order. Write us. All inquiries answered promptly.

**DOUGLAS AUTO PARTS CO., INC.**  
2003-5-7-9 South State St., Chicago, Ill.

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Secured, Trade-Marks and Copyrights Registered  
Prompt service. Highest references. Established 1884.  
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Offices: 639 F St., Washington, D. C.  
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Attorney-at-Law and Solicitor of Patents

**C. L. PARKER**

Formerly Member Examining Corps, United States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request.

McGill Building, WASHINGTON, D. C.

#### AGENTS and DISTRIBUTORS

Distributors and Representatives wanted everywhere. Exclusive necessity. Kelly Automatic Roadlite, Ford, Chevrolet, Overland and all others. John B. Kelly, 5958 W. Washington Blvd., Chicago, Ill.

#### BUSINESS OPPORTUNITIES

**FOR SALE**—Garage, machine shop and service station located in western New York on main thoroughfare Buffalo to New York City. Fine tourist business. Real estate includes 8-room residence. A small down payment on real estate and stock at cost inventory, will handle this gilt edge proposition. Present owner is interested in a manufacturing proposition to which he wishes to give all his attention. Address Box 6244, care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

**FOR SALE**—Automobile business and garage, selling over 75 new cars a year on the increase, two popular agencies, wonderful opportunity in thriving town. Up to date building. Will give long lease. Want to retire. Address Box 6243, care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

**FOR SALE**—Invention embodying combination advertising, parking, trouble auto fender light. Patent pending. Leo Ruf, Carlyle, Ill.



# When you sell a gasket — sell a can of **KEY** Graphite Paste

They go together. Your customer will appreciate knowing that the idea of using cup grease or other melting products for "sealing-in" the gasket is ALL WRONG.

He is buying the new gasket to get a "tight" job and KEY GRAPHITE PASTE, which fills in all the crevices AND STAYS THERE, is the very thing he wants.

He can also use KEY on Spark-plug threads, Bolt threads, on rusted tire rims, etc., and there is nothing better for BATTERY TERMINALS—to prevent corrosion and stop sulphation.

There's quick turn-over, and every time you sell KEY GRAPHITE PASTE you create good-will.

## KEY BOILER EQUIPMENT CO.

27TH AND McCASLAND AVENUE  
EAST ST. LOUIS, ILL.

**10¢**  
gets a Big Sample~

Key Boiler Equipment Co.,  
27th and McCasland Ave., East St. Louis, Ill.  
Enclosed please find 10c for which send the sample can of Key Graphite Paste to:

Name.....  
Business.....  
Address.....  
City..... State.....  
Jobber's Name.....

M.A. 9-24-25

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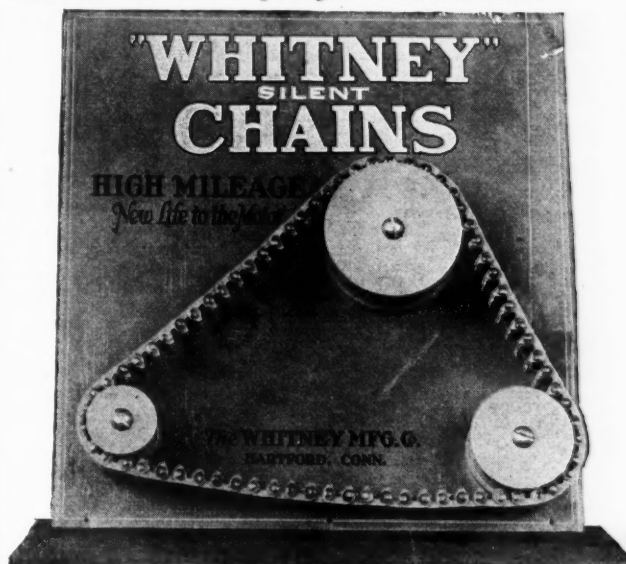
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The demand for dependable timing chains is fully met by the parts dealer who displays this board.



Is There One in Your Window?

WRITE NEAREST DISTRIBUTOR

Authorized distributors listed below

Alabama—Birmingham  
Birmingham Electric Battery Co.  
Arkansas—Little Rock  
Crow-Burlingame Co.  
Canada—Montreal  
Finestone Auto Parts Co.  
Canada—Saskatoon  
Bowman Bros., Ltd.  
Canada—Toronto  
Standard Metal Goods & Auto  
Parts Co., Ltd.  
California—San Francisco  
A. H. Coates Co.  
Colorado—Denver  
Auto Elec. & Appl. Co.  
Connecticut—Hartford  
Connecticut Auto Parts Co.  
Connecticut—New Haven  
Replacement Parts Co.  
Connecticut—New London  
New London Auto Parts Co.  
Florida—Tampa  
Wholesale Auto Supply House  
Georgia—Atlanta  
Alexander Seewald Co.  
Illinois—Chicago  
L. C. Smith Bearings Co.  
Indiana—Indianapolis  
Gibson Company  
Iowa—Des Moines  
Standard Bearings Co.  
Iowa—Sioux City  
Ralph C. Schwinn Co.  
Kansas—Wichita  
E. S. Cowie Electric Co.  
Louisiana—New Orleans  
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Replacement Parts Co.  
Massachusetts—Springfield  
E. B. Atmus Co.  
Michigan—Detroit  
Mich. Replacement Parts Corp.  
Minnesota—Duluth  
Duluth Auto Supply Co.  
Minnesota—Minneapolis  
Western Motor Supply Co.  
Minnesota—Rochester  
National Bushing and Parts Co.  
Minnesota—St. Paul  
Ramsey Motor Service Co.  
Mississippi—Jackson  
Robinson Bros. Motor Co.  
Missouri—Kansas City  
E. S. Cowie Electric Co.  
Missouri—St. Louis  
Auto Parts Co.  
Nebraska—Omaha  
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New York—Albany  
E. V. Holt Distributing Co.  
New York—Binghamton  
United Auto Gear & Parts Co.,  
Inc.  
New York—Buffalo  
Buffalo Bearings Co.  
New York—Rochester  
Sidney B. Roby Co.  
New York—Syracuse  
Syracuse Auto Parts, Inc.  
New York—Utica  
Utica Gear & Auto Parts Co.  
Ohio—Akron  
The Hardware & Supply Co.  
Ohio—Cincinnati  
The Baker Auto Parts Co.  
Ohio—Columbus  
The Griswold-Sohl Co.  
Ohio—Cincinnati  
Auto. Bear. & Equip. Co.  
Ohio—Cleveland  
Aberdeen Motor Supply Co.  
Ohio—Dayton  
The Lewis Motor Mart. Co.  
Ohio—Toledo  
Toledo Standard Parts Co.  
Ohio—Youngstown  
E. E. Emery Co.  
Oklahoma—Oklahoma City  
Harrison Smith Co.  
Pennsylvania—Erie  
Reliable Auto Parts Co., Inc.  
Pennsylvania—Philadelphia  
Auto Equip. & Ser. Co., Inc.  
Pennsylvania—Pittsburgh  
Pittsburgh Auto Equip. Co.  
Rhode Island—Providence  
W. E. Davis Co.  
South Carolina—Charleston  
Gas Engine & Electric Co.  
South Carolina—Columbia  
Columbia Electric Service Co.  
Tennessee—Chattanooga  
James Supply Co.  
Tennessee—Memphis  
Mills-Morris Co.  
Tennessee—Nashville  
Kelth-Simmons & Co.  
Texas—Dallas  
Harrison Smith Co.  
Vermont—Burlington  
Vermont Hardware Co.  
West Virginia—Charleston  
Motor Car Supply Co.  
Washington—Seattle  
A. H. Coates Co.  
Wisconsin—Milwaukee  
Julius Andrae & Sons Co.

**THE WHITNEY MFG. CO.**

HARTFORD

Connecticut

## Writers who mould automotive thought

# A Technical Authority for a Quarter of a Century



P. M. HELDT  
Engineering Editor  
Automotive Industries

It is no mean distinction to be regarded by the engineers of the automotive industry as an authority on technical matters. But when that enviable position covers a span of a quarter century it is a tribute to a man's worth that is practically without a parallel in this field.

Such is the enviable position of P. M. Heldt, engineering editor of Automotive Industries. A quarter of a century ago men in the young and struggling industry were coming to him for advice on technical subjects. Today they are doing the same thing, and they have been doing it constantly from then to now.

Out of the rich storehouse of his knowledge, Heldt has helped countless men with their problems. His advice has been of inestimable value to many. Because of the soundness of his thinking, his profound knowledge and his practical suggestions he is honored and respected by engineers and other influential men of the industry.

Heldt has a technical education and practical experience both in designing and shop work. For a while he represented the McGraw Publishing Company abroad, later becoming associate editor of Horseless Age where he remained for 17 years. In 1917, he became engineering editor of the Automobile, now Automotive Industries, a position he is filling today with distinguished ability.

In addition to his editorial work, Heldt is the author of the most authoritative books published on automotive design, these being extensively used as text books in technical schools and in practical design work.

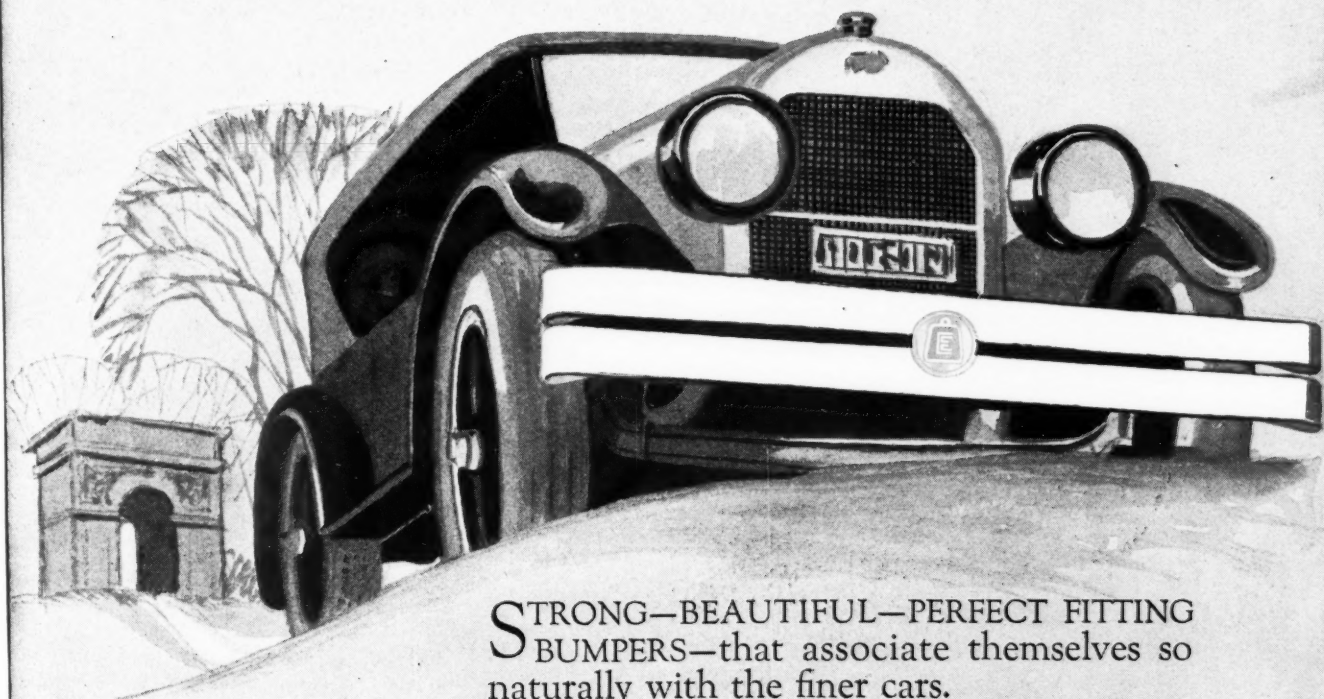
It is having the service of authorities like Heldt that makes the editorial staff of the Chilton Class Journal Company without a peer in the industry.

This is the eighth of a series of announcements dealing with the editorial strength of Chilton Class Journal publications. Each issue will carry a brief sketch of an editor or principal contributor to the group.

The purpose of this series is to place before you the facts about our editorial work so you may know its scope and magnitude and the ability, experience and attainments of the men whose articles you read in these publications.



# EATON



STRONG—BEAUTIFUL—PERFECT FITTING  
BUMPERS—that associate themselves so  
naturally with the finer cars.

Custom-made attachments—and that ex-  
clusive Eaton 2-ton Tested Design—widely  
imitated but never equalled.

*There's an Eaton Wholesaler near you with a com-  
plete stock for quick deliveries in quantities desired.*

THE EATON BUMPER & SPRING SERVICE CO.

*(The Eaton Axle & Spring Company, Manufacturers)*

CLEVELAND CHICAGO NEW YORK PHILADELPHIA BOSTON  
DETROIT DALLAS ALBANY ATLANTA

# BUMPERS



**B**ALLOON tires were a wheel problem. Wheels by Motor Wheel made balloon tires possible. First the steel wheel itself had been made feasible by Motor Wheel.

There is no higher expression of all this Motor Wheel talent than Tuarc steel wheels. They shape the very spirit of motion. They take an exquisite finish. They are immensely strong, yet consistently light and simple.

The hub, brake and rim layout; the direct, outside, standard tire valves; and the 360° demountable rim lock are Tuarc examples of the engineering excellence peculiar to Motor Wheel Products.

MOTOR WHEEL CORPORATION  
*Wood Wheels Steel Wheels Stampings • LANSING, MICHIGAN*

Motor Wheel  
PRODUCTS

